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## The Natural Step and Its Implication for a Sustainable Future

By Alex Tynberg✉

### I. Introduction

The current economic and legal system in the United States fails to guide society toward a sustainable future. A sustainable future is one that involves the just and efficient use of natural resources, wealth, and opportunities in a manner that equitably preserves the natural environment for future generations.<sup>1</sup> The key to achieving sustainability is to change the practices of commerce, which presently exist unencumbered by real connections to the environment. Through adoption of The Natural Step model and other significant influences, commerce, and society, can develop into a more sustainable, restorative existence.

The goal of this article is to introduce The Natural Step to the legal community and to illustrate the value of The Natural Step model, which establishes a set of first-order principles of sustainability.<sup>2</sup> The Natural Step principles, when combined with legal and other approaches, can productively influence commercial practices, and society in general, to function more in harmony with the rules of nature. This article seeks to demonstrate how lawyers can use The Natural Step to effectuate positive change toward sustainability. In fact, effective use of the law is essential to attaining a sustainable future according to The Natural Step principles.

Part I of this article illustrates that sustainability is absent from the majority of commercial life. This reality poses a significant threat to our long-term prosperity. Part II demon-

✉ Alex Tynberg is a practicing attorney in San Francisco, California. The author thanks University of Oregon School of Law Professor Robin Morris Collin, University of California, Hastings College of the Law Professor Naomi Roht-Arriaza, Karl Henrik Robèrt, of The Natural Step International, and Jill Rosenblum, of The Natural Step United States, for their editorial advice and assistance. The conclusions of this Article are solely the author's personal views. All errors and omissions are the responsibility of the author.

1. See John Baldwin, University of Oregon Planning, Public Policy, and Management Department Professor (1998) (Sustainable Development course materials on file with author); cf. Robin Morris Collin & Robert William Collin, *Where Did All the Blue Skies Go? Sustainability and Equity: The New Paradigm*, 9 J. ENVTL. L. & LITIG. 399, 407-11 (1994). This definition of future generations refers to all living species.

2. See discussion *infra* Part III.A.2; see also Karl-Henrik Robèrt, *The Natural Step: A Framework for Achieving Sustainability in Our Organizations*, INNOVATIONS IN MGMT. SERIES 8-9 (1997).

strates that the current economic and legal system does not adequately provide the necessary regulation or incentive to guide commerce toward sustainable practices. Therefore, we must modify the rules of commerce so that they better conform to the rules of nature.

Part III introduces The Natural Step and demonstrates its significance as a model for sustainability. The Natural Step sets forth an easily understandable and concrete set of guidelines that all members of society can use to monitor whether they, or the institutions in which they are involved, are acting according to sustainable principles. This section highlights the benefits that governments, businesses and lawyers gain as a result of The Natural Step's systems-based methodology. Through adoption of The Natural Step's framework and by implementing its policies, businesses can decrease their environmental liabilities, increase energy efficiencies, gain a competitive advantage, and improve their bottom line. The section further demonstrates The Natural Step's value in that, when combined with an environmental management system, it provides the system with a much needed framework for implementation of The Natural Step's principles. The section also raises additional issues that should be considered when applying The Natural Step as a sustainability program on a broad-based level. Furthermore, the section evidences the practical application results that businesses worldwide have attained through use of The Natural Step principles.

Part IV discusses the role of lawyers in promoting change toward a sustainable future. This section sets forth a strategic implementation program to complement The Natural Step model and identifies the current programs and projects undertaken by the United States Environmental Protection Agency ("EPA") that

are aligned with these principles. The section illustrates a number of effective approaches that can be implemented to transform commerce and society. These approaches demonstrate that a sustainable future can only come about through sweeping reform of existing law and significant changes in the ways in which government operates and influences behavior. Finally, the conclusion illustrates the need for all segments of society to work toward the same goal. Government leaders, lawyers and the business community must all proactively become involved if we are to bring about a new and sustainable economy.

## II. Commerce and Its Unsustainable Ways

Commercial activity has perpetuated extraordinary ecological consequences that severely jeopardize the earth's ability to sustain itself.<sup>3</sup> Due to commerce's unsustainable practices, environmental problems have multiplied and changed drastically as they have become increasingly more complex, permanent, and global in nature. The result is a systematic threat to the long-term prosperity of our environment and our economy.

The environmental problems we face are caused by the fact that commerce is ignoring the laws of nature.<sup>4</sup> Conventional accounting principles have never placed "natural capital," comprised of both the resources we use and the services they provide, on the balance sheet.<sup>5</sup> Furthermore, the current trend of commerce to pursue greater levels of global activity is making it increasingly difficult for societies to move toward a sustainable path.<sup>6</sup> As long as society fails to require commerce to take responsibility for its role in depleting natural capital, environmental problems will only worsen.<sup>7</sup>

With environmental problems, complicated

3. See Karl-Henrik Robèrt et al., *A Compass for Sustainable Development*, 4 INT'L J. SUSTAINABLE DEV. & WORLD ECOLOGY 79, 87 (1997); see generally MATHIS WACKERNAGEL & WILLIAM REES, *OUR ECOLOGICAL FOOTPRINT: REDUCING HUMAN IMPACT ON THE EARTH* (1996); I ROBERT COSTANZA & HERMAN E. DALY, *NATURAL CAPITALISM AND SUSTAINABLE DEVELOPMENT, CONSERVATION BIOLOGY* (1992); BRIAN NATTRASS & MARY ALTOMARE, *THE NATURAL STEP FOR BUSINESS: WEALTH ECOLOGY AND THE EVOLUTIONARY CORPORATION* (1999).

4. See Paul Hawken, *Natural Capitalism*, MOTHER JONES, Mar.-

Apr., 1997, at 42; HUEY D. JOHNSON, *GREEN PLANS: GREENPRINT FOR SUSTAINABILITY* 136 (1995).

5. See Hawken, *supra* note 4, at 42; see generally COSTANZA & DALY, *supra* note 3; HERMAN E. DALY, *BEYOND GROWTH* (1996).

6. See Sara Dillon, *Trade and the Environment: A Challenge to the GATT/WTO Principle of Ever-Freer Trade*, 11 ST. JOHN'S J. LEGAL COMMENT. 351, 378 (1996); see generally WACKERNAGEL & REES, *supra* note 3.

7. Cf. JOHNSON, *supra* note 4, at 136.

issues of social justice, race, gender, and poverty have often been exacerbated by unsustainable commercial activity.<sup>8</sup> Consequently, the failure of commerce to operate in a responsible manner has caused detrimental repercussions throughout all of society.

### III. The Current Economic and Legal System Fails to Promote Sustainability Within Commerce

"In many ways business economics makes itself up as it progresses, and essentially lacks any guiding principles to relate it to such fundamental and critical concepts as evolution, biological diversity, carrying capacity, and the health of the commons."<sup>9</sup> Moreover, the economic market is unable to incorporate a sustainability evaluation in its own terms. While economic theory can account for pollution and depletion of finite resources, it is difficult to find methods that fully evaluate these aspects in monetary terms. "In such efforts, attempts are made to evaluate the costs for marginal changes without reference or consideration to the overall conditions for sustainability."<sup>10</sup> The result is that "costs tend not to escalate until something dramatic occurs, which means that feedback comes too late."<sup>11</sup>

Prevailing commercial practices are guided by the promise that we can stay the way we are

and do business unencumbered by real connections to the environment.<sup>12</sup> This type of commercial operation will persist until businesses voluntarily change their policies or the government steps in to create the necessary incentives to change their behavior. Because businesses inherently will exclude particular costs, such as the true costs of destroying natural capital, unless otherwise influenced to become accountable for them, this problem is likely to persist as long as government action and leadership remain ineffective.

The current "command and control" regulatory model does not promote sustainability because it allows the business community to exist free from legitimate environmental and social responsibility.<sup>13</sup> The major environmental laws, such as the Clean Air Act,<sup>14</sup> Clean Water Act,<sup>15</sup> Resource Conservation and Recovery Act,<sup>16</sup> Comprehensive Environmental Response, Compensation, and Liability Act,<sup>17</sup> Toxic Substances Control Act,<sup>18</sup> Federal Insecticide, Fungicide, and Rodenticide Act,<sup>19</sup> National Environmental Policy Act,<sup>20</sup> Federal Land Policy and Management Act,<sup>21</sup> and Endangered Species Act,<sup>22</sup> do not get to the root of environmental problems because they do not regulate based on the well-established laws of nature.<sup>23</sup> The media-by-media approaches governed by our environmental laws fail to focus on the fact that our natural

8. Cf. Collin & Collin, *supra* note 1, at 445-49.

9. PAUL HAWKEN, *THE ECOLOGY OF COMMERCE: A DECLARATION OF SUSTAINABILITY* 5 (1993).

10. Robèrt, *supra* note 3, at 81.

11. *Id.*

12. See HAWKEN, *supra* note 9, at 11.

13. See J.B. Ruhl, *Thinking of Environmental Law as a Complex Adaptive System: How to Clean Up the Environment by Making a Mess of Environmental Law*, 34 *HOUS. L. REV.* 933, 992 (1997); see also William D. Ruckelshaus, *Stopping the Pendulum*, *ENVTL. FORUM*, Nov.-Dec. 1995 at 28, 29; PHILIP K. HOWARD, *THE DEATH OF COMMON SENSE, HOW LAW IS SUFFOCATING AMERICA* (1994); Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law*, 37 *STAN. L. REV.* 1333 (1985).

14. 42 U.S.C. §§ 7401-7671(q) (2000).

15. 33 U.S.C. §§ 1251-1387 (2000).

16. 42 U.S.C. §§ 6901-6992(k) (2000).

17. 42 U.S.C. §§ 9601-9675 (2000).

18. 15 U.S.C. §§ 1206-2692 (2000). The Toxic Substances Control Act and the National Environmental Policy Act were

intended to incorporate an integrative approach to environmental management, but in fact have had little impact on the government's media policies. See Bradford C. Mank, *The Environmental Protection Agency's Project XL and Other Regulatory Reform Initiatives: The Need for Legislative Authorization*, 25 *ECOLOGY L.Q.* 1, 6 (1998).

19. 7 U.S.C. §§ 136-136(y) (2000).

20. 42 U.S.C. §§ 4321-4370(d) (2000).

21. 43 U.S.C. §§ 1701-1785 (2000).

22. 16 U.S.C. §§ 1531-1534 (2000).

23. See Barton H. Thompson, *The Search for Regulatory Alternatives*, 15 *STAN. ENVTL. L.J.* 8 (1996) (discussing our failure to meet environmental goals). However, the Clean Water Action Plan attempts to take a watershed approach to clean water protection. See Statement by the President on the Clean Water Action Plan, White House Press Release (Feb. 19, 1998); see also 63 *Fed. Reg.* 14,109 (1998).

resource base is an integral component of the ecosphere.<sup>24</sup> Consequently, these laws do not require commerce to face its three most critical issues: what it takes, what it makes, and what it wastes— all of which have profound implications for the environment's natural cycle.<sup>25</sup> "First, [commerce] takes too much from the environment and does so in a harmful way; second, the products it makes require excessive amounts of energy, toxins, and pollutants; and finally, the method of manufacture and the very products themselves produce extraordinary waste and cause harm to present and future generations of all species including humans."<sup>26</sup> Until commerce squarely deals with these fundamental issues, pollution and depletion of our natural resources will continue at alarming rates.

By not compelling commerce to bear its full costs, government gives ecologically destructive business operations an enormous subsidy.<sup>27</sup> We cannot afford for this policy to continue. We therefore are at a point where we need to modify the rules of commerce "so that they conform to the rules of the biophysical world which cannot be amended, changed or negotiated."<sup>28</sup> We must proceed using the overall physical conditions for sustainability as the basis for any approach, as "nature must survive

independently of how it is economically evaluated."<sup>29</sup> Because "[t]here is no guarantee that all environmental costs can ever be internalized [so] that prices alone will provide enough information to foster [sustainable commercial practices]. . . . monetary models must be complemented with models based on physical indicators that measure society's development towards or away from sustainability."<sup>30</sup> Thus, we need multidimensional and multilevel measures that focus early in the cause and effect chain and which derive from a comprehensive description of the overall physical conditions that must be met in a sustainable society.<sup>31</sup> Once this change occurs and "[natural capital] is included, not as a free amenity or as a putative infinite supply, but as an integral and valuable part of the production process, everything changes. Prices, costs, and what is and isn't economically sound change dramatically."<sup>32</sup>

#### IV. The Natural Step as a Solution

The Natural Step is a theoretical model of sustainability that was developed among one hundred eminent Swedish scientists and coordinated in 1988 by cancer physician Dr. Karl-Henrik Robèrt.<sup>33</sup> The Natural Step model was the result of twenty-one drafts that Robèrt sent

24. See Robert W. Collin & Robin Morris Collin, *The Role of Communities in Environmental Decisions: Communities Speaking For Themselves*, 13 J. ENVTL. L. & LITIG. 37, 39 (1998). Rather, the media-by-media approaches lead to a disjunctive fragmentation of nature and its systems. See JOHNSON, *supra* note 4, at 13. Furthermore, this scattered approach to environmental protection has important policy implications, most significantly prohibiting the government regulators from prioritizing the nation's environmental problems in a broad, strategic fashion. See Elizabeth Glass Geltman & Andrew E. Skroback, *Reinventing the EPA to Conform with the New Environmentality*, 23 COLUM. J. ENVTL. L. 1, 7 (1998).

25. See HAWKEN, *supra* note 9, at 12.

26. *Id.*

27. See Robert E. Hudec, *Differences in National Environmental Standards: The Level-Playing-Field Dimension*, 5 MINN. J. GLOBAL TRADE 1, 14 (1996).

28. Robèrt, *supra* note 3, at 80.

29. *Id.* at 81.

30. *Id.*

31. See discussion *infra* Part IV.

32. Hawken, *supra* note 4, at 42.

33. See Letter from Karl-Henrik Robèrt, Co-Chair of The Natural Step Foundation, to author 2 (May 18, 1998) (on file with author); see also Dorie Kranz & Susan Burns, *Combining The Natural Step and ISO 14001*, PERSPS. ON BUS. & GLOBAL CHANGE, Dec. 1997, at 8.

In the course of his review of literature pertaining to health-related effects of environmental contamination, Dr. Robèrt became aware that effective action on environmental problems was being held back by endless disagreement over details. This insight convinced him that what was needed was a way to address environmental issues as an entire system rather than as a series of disparate symptoms.

See *id.* While the model was developed in 1988, the organization that bears the same name, The Natural Step, was founded in 1989. See *id.* The Natural Step model should not be confused with The Natural Step as an organization. See NATTRASS & ALTOMORE, *supra* note 3, at 162. "The Natural Step organization is an international network of non-profit organizations, generally constituted for the purpose of sustainability education, dialogue, and continued learning." *Id.* This article addresses The Natural Step model. Although initially devised in 1988, the model has been "further developed in a growing network of scientists all over the world." Letter from Karl-Henrik Robèrt, *supra*.

to all of the scientists, inviting feedback until they agreed upon a final consensus document on ecological principles.<sup>34</sup>

### A. The Natural Step and Its Potential Influence

"The power and originality of [The Natural Step] is that it distills complex scientific principles into [four easily understandable concepts]."<sup>35</sup> This quality allows any person, whether a company president or chemical engineer, to work with others in his or her own way, toward a common goal.<sup>36</sup> Because everyone can comprehend the same basic concepts set forth in The Natural Step model, individuals, organizations, communities and governments gain the ability to think strategically together about the best approaches that can be taken to invest in a sustainable future. The Natural Step model also provides "a framework for thinking that helps clarify and identify the right questions with respect to sustainability and a way to map out the steps for formulating and testing solutions."<sup>37</sup> Consequently, The Natural Step framework, together with a strategic program, provides a concrete model, a compass, that can guide society toward sustainability.<sup>38</sup>

#### 1. The Four System Conditions

The Natural Step incorporates four basic system conditions, all of which are prerequi-

sites to a sustainable society. The first system condition requires that "*the functions and biodiversity of the ecosphere must not be systematically*"<sup>39</sup> *undermined by increasing concentrations of substances extracted from the lithosphere*"<sup>40</sup>—meaning that "fossil fuels, metals, and other minerals must not be extracted and dispersed at a faster pace than their slow redeposit and reintegration into the earth's crust."<sup>41</sup> The second system condition requires that "*the functions and biodiversity of the ecosphere are not systematically undermined by . . . increasing concentrations of substances produced in the technosphere*"<sup>42</sup>—meaning that substances (molecules and nuclides) "must not be produced and dispersed" by human society "at a faster pace than they can be broken down and integrated into the cycles of nature or be deposited into the earth's crust."<sup>43</sup> The third system condition requires that "*the functions and biodiversity of the ecosphere are not systematically undermined by . . . physical impoverishment from manipulation or overharvesting*"<sup>44</sup>—meaning that the ecosystem must not be harvested, mismanaged, or displaced in such a way that its productive capacity and diversity systematically deteriorate.<sup>45</sup> The fourth system condition requires that the "*use of resources is fair and efficient enough to meet vital human needs everywhere*"<sup>46</sup>—meaning basic human needs must be met with the most resource-efficient methods possible and meeting these needs must take precedence over luxury consumption.<sup>47</sup> Furthermore,

34. See THE OREGON NATURAL STEP NETWORK, THE NATURAL STEP TO SUSTAINABILITY I (1998) (WINGSPREAD JOURNAL, Spring 1997, reprint) (on file with author).

35. Kranz & Burns, *supra* note 33, at 16. Furthermore, because the core concepts of The Natural Step are scientifically based and derived through consensus among scientists, they "offer common ground where people of disparate beliefs and values can discuss environmental and economic concerns without drowning in disputes." *Id.* at 17.

36. *Id.* at 16.

37. NATTRASS & ALTOMORE, *supra* note 3, at 164.

38. See Robèrt, *supra* note 3, at 88.

39. In this context, "systematically" means either "(i) the deviation from the natural state must not systematically increase...due to the influence from society," or "(ii) the society must not be organized in such a way that it makes itself systematically dependent on activities that cause such (i) effects." John Holmberg & Karl-Henrik Robèrt, The System Conditions for Sustainability: A Tool for Strategic Planning 13 n.2 (1998 draft) (unpublished manuscript, on file with author) (submitted to J.

INDUS. ECOLOGY).

40. *Id.* at 3 (footnote omitted).

41. Robèrt, *supra* note 3, at 85; see also Holmberg & Robèrt, *supra* note 39, at 3-4.

42. Holmberg & Robèrt, *supra* note 39, at 3 (footnote omitted).

43. Robèrt, *supra* note 3, at 86; see also Holmberg & Robèrt, *supra* note 39, at 4.

44. Holmberg & Robèrt, *supra* note 39, at 3 (footnote omitted). Impoverishment refers to negatively affecting "the thickness of the productive soils, nutrient contents, ground water, genetic variation, etc." *Id.* at 13 n.3.

45. Robèrt, *supra* note 3, at 86; see also Holmberg & Robèrt, *supra* note 39, at 4.

46. Holmberg & Robèrt, *supra* note 39, at 3 (footnote omitted). The term "fair" is an efficiency parameter that evaluates resource use both geographically and over time. *Id.* at 13 n.4.

47. See Robèrt, *supra* note 3, at 86; see also Holmberg & Robèrt, *supra* note 39, at 4.

a "just resource distribution is necessary to ensure the social stability and cooperation needed for making the changes in due time."<sup>48</sup>

## 2. The Natural Step Demonstrates its Value as a Successful Model for Sustainability

The Natural Step satisfies all of the requirements for a successful model of sustainability. First, The Natural Step model is based on scientifically accepted principles. The model proceeds from well-established laws of nature (the laws of physics, thermodynamics, and evolutionary biology) and from the fact that humanity must exist within a limited environment.<sup>49</sup>

Second, the model contains a scientifically supportable definition of sustainability. The Natural Step model follows the general rule that substantial divergences from the natural state (i.e., when compared to natural fluctuations) must be avoided.<sup>50</sup> Furthermore, by focusing on the underlying mechanisms rather than the effects in nature, the model avoids the requirement of knowing all the complex potential effects downstream.<sup>51</sup> Rather, the model encourages people to think "upstream" in the cause and effect chains to the first-order principles of any system, which enables people to better understand and more easily address problems.<sup>52</sup>

Third, The Natural Step model is applicable at different levels and views the economy as a subsystem of the ecosystem at each level. By proceeding from a whole systems perspective (the ecosphere), the model provides an absolute frame of reference rather than a sum of varying details.<sup>53</sup> This component of The Natural Step demonstrates its extraordinary value. The incorporation of a systems-based approach provides a government, a business or a lawyer with the framework and skill-set in

which to bring about fundamental transformation in commerce and throughout society. In particular, it gives lawyers a methodology with which to assist their clients to decrease their liabilities by going beyond compliance, to increase their efficiencies and to improve their bottom line.<sup>54</sup> The clients further gain a competitive advantage, eliminate the potential for incurring the exorbitant legal costs typically involved with environmental-related litigation and better ensure the business's security in surviving the uncertainties of the twenty-first century.

The Natural Step model also "can be used as an integrating framework to seamlessly tie together many different components of a system into one coherent whole, such as different and disparate environmental programs within an organization."<sup>55</sup> Moreover, the model is universally applicable in having all components of society to meet the four system conditions.<sup>56</sup> Thus, individuals will be able to see how their actions aggregately affect both the micro and macro levels and can understand their role in the overall movement toward sustainability.<sup>57</sup>

Fourth, the micro-economic perspective within The Natural Step model does not require individuals to act against their self-interest. Compliance with the model's framework is and will continue to be in the long-term self-interest (economic and other) of individuals and institutions.<sup>58</sup>

Fifth, The Natural Step model is "pedagogical and simple to disseminate [whereby] it can support a public consensus necessary to be put into practice democratically."<sup>59</sup> The model's purpose "is to stimulate informed democratic decisions in politics and industry through the creation of public understanding of scientific matters in the simplest possible way, but without ending up in reductionism."<sup>60</sup> The model describes an overall framework "for the relation

48. See Kranz & Burns, *supra* note 33, at 15-16.

49. See Robèrt, *supra* note 3, at 88.

50. *See id.*

51. *See id.*

52. See NATTRASS & ALTOMORE, *supra* note 3, at 163.

53. Robèrt, *supra* note 3, at 88.

54. *See* discussion *infra* Part III.D.

55. NATTRASS & ALTOMORE, *supra* note 3, at 163.

56. *See* Robèrt, *supra* note 3, at 88.

57. *See id.* at 80.

58. *See id.* at 89.

59. *Id.* at 81.

60. *Id.* at 89. Thus, the overall picture will be kept in mind when applying the model to specific individual levels.

of the subsystem (economy) to the total system (nature and society)."<sup>61</sup>

Sixth, The Natural Step model is not adversarial nor does it engender unnecessary resistance. The Natural Step's "applicability at various geographic scales, reliance on self interest, and accessible pedagogy, all combine to give the model a bridge-building function."<sup>62</sup> By leaving the specific details of implementation to individuals, the model "stimulates engagement and respect rather than defence [sic] mechanisms."<sup>63</sup> Furthermore, it engenders education and consensus-building among those involved in the process of applying the model to a particular organization or legislation.

Seventh, The Natural Step model is capable of implementation without first requiring large-scale societal changes. Consequently, corporations, political parties, and all segments of the public are able to use the model directly in today's economic reality.<sup>64</sup> The model immediately can be put into practice and can be implemented through small steps of behavioral change.<sup>65</sup>

Finally, The Natural Step model "can be used as a starting point for developing 'new economies'" that "recognize a new and larger pattern of scarcity to which old and basic economic principles must be applied."<sup>66</sup> Accordingly, the prices that guide can be those that incorporate the full costs to society and which include the cost of maintaining environmental sustainability.<sup>67</sup> Therefore, "once the market is constrained by [The Natural Step's] four System Conditions," market prices would be those "that internalize the previously external cost of non-sustainability."<sup>68</sup>

The Natural Step model represents a successful and comprehensive approach to achieving sustainability. By embracing commercial activity, The Natural Step goes to the

heart of the problem, and sets forth an effective method in which to begin to move society forward to a new, sustainable existence.

## **B. Additional Considerations Not Addressed by The Natural Step Model**

The Natural Step model was not intended to be an all-encompassing model covering the whole area of sustainability.<sup>69</sup> Its purpose was to set forth an irrefutable set of scientifically-based principles to educate the public and to help guide society toward sustainability.<sup>70</sup> The Natural Step model's objective is to serve "as a shared mental model for the structuring of thoughts within universities, business corporations and municipalities."<sup>71</sup> While The Natural Step principles set forth a general model for creating a sustainable future, there are some details that, by design, have been excluded. They have been left out because they are, in a sense, separate issues from a sustainability model. These issues include remedying historical inequities and implementing the four system conditions in the current political reality. Even though these issues may not have a place in a non-prescriptive model, such as The Natural Step, they must be faced when contemplating any comprehensive sustainability framework and are essential to establishing a sustainable future. Thus, they should be analyzed here in the context of using The Natural Step model as a means to effectuate broad-based change throughout a nation, such as the United States.

### **1. The Issue of Historical Inequities**

"Inequitable distribution of industrial benefits [i.e. natural resources, wealth, and opportunities] and burdens throughout national and global industrialized economies created the inequities in post-industrial societies."<sup>72</sup> This distribution was unequal among race, gender,

61. *Id.*

62. *Id.*

63. *Id.* at 90.

64. *See id.* at 81.

65. *See id.* at 90.

66. *Id.* at 81.

67. *See id.* at 90; *see also* discussion *infra* Part IV.B.3.

68. Robèrt, *supra* note 3, at 90.

69. *See id.* at 79.

70. *See id.*

71. Holmberg & Robèrt, *supra* note 39, at 10.

72. Collin & Collin, *supra* note 1, at 452.

and income classes.<sup>73</sup> Consequently, any comprehensive framework for sustainability should seek to remedy this critical problem. In fact, this should be a primary goal because any comprehensive sustainability approach "will require historically disenfranchised people to be personally committed to the program."<sup>74</sup>

Because Sweden, the birthplace of The Natural Step, is a relatively homogenous society, Sweden most likely has not experienced substantial minority populations that have faced significant injustices.<sup>75</sup> "Moreover, the number of people living in poverty [in Sweden] is relatively small, and the difference in income level between average income and low income continues to be moderate."<sup>76</sup> Therefore, Sweden has not encountered the magnitude of problems concerning historical inequity that other nations, such as the United States, have.<sup>77</sup> Thus, when using The Natural Step model as a broad-based scheme in a country such as the United States, there must be a concerted effort to address the historical inequities issue, which is more problematic and poses greater obstacles to achieving sustainability than it does in other parts of the world.

The Natural Step model recognizes the importance of equity in its fourth system condition, which requires a "[f]air and efficient use of resources with respect to meeting human needs... everywhere today and in the future."<sup>78</sup> Inherent in the model is the understanding that "such fairness [and efficiency] is essential for social stability and the cooperation needed for making the large-scale changes."<sup>79</sup> This condition means that "if we are more efficient, technically, in organization and socially, more services with the possibility of meeting human needs can be provided for a given level of influence on nature."<sup>80</sup>

However, it seems that in order to achieve

a sustainable society, at least in the United States, "basic human needs should be met with the most resource-efficient methods possible."<sup>81</sup> Rather, the approach must seek to generate further equality among the excessively rich and those minority low-income populations that have been historically oppressed. A stronger emphasis on this issue is necessary in order to achieve true sustainability. For instance, tax revenue, subsidies, and other forms of government spending should be used as economic means to address historical inequities in the current system.<sup>82</sup> The redistribution of wealth and other opportunities is an obvious first step for the government to take.

One example of how social inequities can be remedied is through green taxes,<sup>83</sup> which will result in a tax shift from the higher production costs that are passed on to the consumer. Imposing taxes on environmentally unsound products (such as those which are energy intense or pollutant generating), will cause their prices to rise. This price increase will have an extra burdensome impact on the poor, because the poor then will be unable to afford many of these necessary products and services. In this context, any green tax scheme would be to "change *what* is taxed, not *who* is taxed. But no tax shift is uniform, and without adjustments for lower incomes, a shift toward taxing resources would likely be regressive."<sup>84</sup> Thus, government policies that seek to support The Natural Step four system conditions can be used so that they will *benefit* the lower class and those who have been unjustly impacted by present economic and legal policy. It is time that a new system comes into place that seeks to remedy past inequities and to address the environment and social inequities in the same step. We should use increases in tax revenues and shifts in subsidy policy to restore societal equality.

73. See *id.*

74. *Id.* at 457.

75. See Deborah Kenn, *One Nation's Dream, Another's Reality: Housing Justice in Sweden*, 22 *BROOK. J. INT'L L.* 63, 79 (1996); Jay Rand, Note, *Employment Protection for the Substance Abuser: A Comparison of the Swedish and American Approaches*, 9 *COMP. LAB. L.J.* 450, 472 (1988).

76. Kenn, *supra* note 75, at 102.

77. See *id.* at 79; Rand, *supra* note 75, at page 472.

78. Robèrt, *supra* note 3, at 86.

79. Robèrt, *supra* note 2, at 9.

80. Holmberg & Robèrt, *supra* note 39, at 4.

81. Robèrt, *supra* note 3, at 86.

82. See discussion *infra* Part IV.B.

83. See discussion *infra* Part IV.B.3.

84. See Hawken, *supra* note 4, at 53.

Moreover, minorities, women, and lower income populations also should benefit from an economic marketplace comprised of commercial enterprises that are more accountable to their communities. Businesses in a sustainable economy will generate greater employment opportunities and a sense of value to "people whose jobs [in the current system] have been downsized, re-engineered, or restructured out of existence [and who] are being told that we have created an economic system so ingenious that it doesn't need them...".<sup>85</sup> Furthermore, stakeholder decision-making approaches involve empowering and educating the public by giving all of its members knowledge and understanding of critical societal issues.<sup>86</sup> These strategies, combined with a more localized and community involved government, will allow those who previously have been economically and politically disenfranchised to achieve a genuine stake in the process.<sup>87</sup>

## 2. The Issue of Implementation

One of the virtues of The Natural Step is that it does not coerce individuals to change their behavior in particular ways according to a prescriptive detailed program.<sup>88</sup> The model was designed to be applicable "on a general level [so that] different actors within business, organisations [sic] and municipalities...can draw conclusions about what these restrictions imply for their specific activities."<sup>89</sup> The Natural Step seeks to educate the public so that individuals will determine on their own how they will comply with the model. By leaving this determination to individuals, the Natural Step

"stimulates engagement and respect rather than defence [sic] mechanisms."<sup>90</sup>

The Natural Step model was intended to supplement strategic government programs which use the model as guidance, in creating necessary incentives to foster and promote the model's principles throughout society.<sup>91</sup> The Natural Step does not attempt to describe this necessary strategic program, but rather has established a useful framework that leaves it up to individual government leaders to devise the conditions into their own guidelines and policies.<sup>92</sup> In fact, The Natural Step is effective because it is not a prescriptive program. Due to the complexity of the issues involved, it would be impossible to create a strict program that would apply to all situations. Through education, The Natural Step provides the public with a critical basic understanding and leaves it up to individuals and government leaders to figure out how to achieve the changes that are needed. Again, here is an area where lawyers can and must have a role. Lawyers should actively seek to work within the political process to change the laws so as to influence societal behaviors in ways that will better comply with The Natural Step's system conditions.<sup>93</sup> Any approach must involve "environmentally concerned customers, stricter legislation, and higher costs and fees for resources as well as pollution" which lawyers can promote and establish.<sup>94</sup>

Because The Natural Step, by design, is only a theoretical model, it does not address today's problematic political reality that large corporations have taken over our political system.<sup>95</sup> Given this predicament, it will be

85. *Id.* at 49.

86. See discussion *infra* Part IV.B.

87. See Collin & Collin, *supra* note 1, at 456; see also discussion *infra* Part IV.B.2.

88. See Robèrt, *supra* note 3, at 89-90. "Rather than campaigning, which pressures people to change, The Natural Step presents undisputed information in nonthreatening ways, and invites listeners to open a dialogue in order to explore the issue of sustainability. In this way the responsibility for action remains with those in a position to act." Robèrt, *supra* note 2, at 1. Nonetheless, The Natural Step organization has been criticized as not assisting companies enough in "implementation strategies, tactics or tools...after the companies [have] received [a] general education in the framework." NATTRASS & ALTOMARE, *supra* note 3, at 164.

89. Holmberg & Robèrt, *supra* note 39, at 11.

90. Robèrt, *supra* note 3, at 89-90. Much has been written to demonstrate ways in which businesses, organizations, and individuals can use The Natural Step system conditions through "backcasting" and a "focus on low hanging fruit." See Holmberg & Robèrt, *supra* note 39, at 7-9.

91. See Robèrt, *supra* note 3, at 88.

92. See Holmberg & Robèrt, *supra* note 39, at 7.

93. See discussion *infra* Part III.A.

94. Robèrt, *supra* note 3, at 87; see discussion *infra* Part IV.

95. See HAWKEN, *supra* note 9, at 167; see also JANE JACOBS, SYSTEMS OF SURVIVAL: A DIALOGUE ON THE MORAL FOUNDATION OF COMMERCE AND POLITICS 21 (1992).

extremely difficult to bring about stricter legislation to promote the four system conditions. Furthermore, even if stricter legislation can be implemented, the political reality will still remain—that corporations would still have tremendous influence on the political system. Thus, additional measures must be taken to keep the commercial and government, or guardian, entities isolated from guidance of roles within the other system.<sup>96</sup> Because “all thousand mile journeys commence with one step the model should be implemented within today’s economic reality by taking relatively small steps in the right direction.”<sup>97</sup>

Nonetheless, due to current regulatory and compliance issues, it is becoming apparent that business and other organizational entities will be forced to substantially improve their pollution prevention methods to better comply with The Natural Step system condition framework. Ultimately, the parties responsible for our environmental degradation will have to reevaluate what they take, what they make, and what they waste so as to limit their ecological harm.<sup>98</sup> At the same time, businesses and other entities presently are increasing their profits and becoming more economically competitive as a direct result of changing their operations to ones that function more in line with the rules of nature.<sup>99</sup> The case studies discussed in Part III.D demonstrate that The Natural Step strategies have improved companies’ bottom lines. Thus, the marketplace itself rewards and will continue to reward those organizations that operate more sustainably.

### C. The Natural Step Benefit to an Environmental Management Systems Approach

An Environmental Management System (“EMS”) assists an organization in understanding its environmental effects. EMSs seek to evaluate and typically improve the environmental impacts of an organization’s activities (i.e. the environmental performance of the organization).<sup>100</sup> An EMS is based on the notion that having better systems in place will lead to improved environmental performance and will generate less pollution.<sup>101</sup> Although current EMS regulation is legally voluntary in nature, EMSs are increasingly being implemented by businesses nationwide and worldwide. As demonstrated in the following section, The Natural Step can assist a company’s EMS in expanding from merely focusing on compliance and incremental environmental improvements, to simultaneously enhancing the company’s environmental and economic performance while strategically bringing about a comparative advantage. Thus, organizations that are implementing an EMS should strongly consider aligning the EMS with The Natural Step strategy.

The International Standards Organization’s (“ISO”) 14001 environmental standard series is expected to become the most widely accepted global environmental management standard and is also expected to become a condition of doing business with numerous companies and corporations worldwide.<sup>102</sup> Therefore, the following analysis will demonstrate the benefits of applying The Natural Step to the ISO 14001

96. See JACOBS, *supra* note 95, at 81; see also discussion *infra* Part IV.A.

97. Robèrt, *supra* note 3, at 90.

98. See HAWKEN, *supra* note 9, at 12 (discussing what businesses will need to face).

99. See generally NATTRASS & ALTOMARE, *supra* note 3.

100. See Clifford Rechtschaffen, *Deterrence v. Cooperation and the Evolving Theory of Environmental Enforcement*, 71 S. CAL. L. REV. 1181, 1257-58 (1998).

101. See *id.* at 1258; see also MERIT PARTNERSHIP FOR POLLUTION PREVENTION, U.S. EPA REGION IX ENVIRONMENTAL MANAGEMENT SYSTEMS AND FINANCIAL INCENTIVES—A MERIT PARTNERSHIP FOR POLLUTION PREVENTION PROJECT: DISCUSSIONS WITH INDUSTRY ABOUT ENVIRONMENTAL MANAGEMENT (1998).

102. Rechtschaffen, *supra* note 100, at 1258; see also Marc E. Gold, ISO 14000: A New Global Business Benchmark, 12 ENVTL. COMPLIANCE & LITIG. STRATEGY 1 (1995).

program. Nevertheless, The Natural Step provides value to any EMS, regardless of whether it is an ISO 14001.<sup>103</sup>

The management standard of ISO 14001 consists of several key components.<sup>104</sup> The first component is planning—top management must institute an environmental policy for the organization, identify "environmental aspects" of the organization's activities, products and services, and the applicable legal requirements, and establish environmental objectives and targets through a detailed program.<sup>105</sup> The second component is implementation—organizations must institute internal processes to implement their policies and objectives, including designation of environmental managers, training programs, and communication systems and operating procedures.<sup>106</sup> The final component is monitoring and review—organizations must regularly monitor their environmental progress and must regularly conduct management system audits to verify compliance with ISO 14001.<sup>107</sup>

The management system outlined in ISO 14001 is cyclic. The cycle begins by setting an environmental policy, planning how it will be carried out, implementing those plans, monitoring and ensuring compliance, reviewing the program's efficacy, and beginning a new cycle with a revised policy and program based on the

review.<sup>108</sup> Under this analysis, the organization ideally would improve its environmental performance with each cycle. Unfortunately, however, ISO 14001 fails to ensure that an organization will realize any specific compliance benefits because the standard does not prescribe fixed performance standards or require emissions and discharge reductions. In other words, "ISO 14001 can be viewed primarily as a framework and tool for implementing performance requirements set elsewhere" (e.g. the objective of the ISO 14001 standard is to achieve goals, not to set them).<sup>109</sup> The organization can choose what aspects it wants to improve and at what degree of improvement is desired, without having to formulate any concrete solutions to its environmental problems. Although ISO 14001 provides a system for managing information, processing feedback, and assisting a company to design, implement, and improve programs aimed at environmental improvements, it fails to provide a vision of the direction that companies need to go to develop into more sustainable organizations. The Natural Step provides organizations with much-needed guidance because it focuses on content, rather than process.

The Natural Step will ensure that an organization implementing ISO 14001 will incorporate "a framework for decision-making that

103. See *Allowing Voluntary Participation by Companies in the Industrial Sector in a Community Eco-Management and Audit Scheme*, Council Regulation 1836/93, art. 1(2) (1993) [hereinafter *Council Regulation*] (which promulgates The European Union Eco Management and Audit Scheme (EMAS)). EMAS was the first government regulation that explicitly encouraged the adoption and practice of environmental management and auditing in a comprehensive and detailed manner. See Eric W. Orts, *Reflexive Environmental Law*, 89 NW. U. L. REV. 1227, 1287-88 (1995). The current versions of the EMAS and ISO 14001 contain some minor but distinct differences. See Rechtschaffen, *supra* note 100, at 1259-60. Essentially, the EMAS proposes to achieve its objective through environmental management policies and programs, environmental auditing systems and public environmental disclosure statements. See *Council Regulation*, *supra*, at art. 1(2). For each participating site, organizations must develop an environmental program that describes its EMAS and its environmental protection objectives. See *id.* at Annex I, C. Organizations must implement their policies and programs through a variety of internal systems, including maintaining a registry of significant environmental effects at each site. See *id.* at Annex I, A-C. Each site must institute an environmental audit at least every three years that reviews both the facility's management system and its compliance issues. See *id.* at Annex II, C. Furthermore, each facility must prepare and produce to the public summaries of the internal audits which must include an assessment of "all the signifi-

cant environmental issues of relevance [and] information about emissions, waste generation, consumption of resources, and other factors regarding environmental performance." *Id.* at art. 6.1-7.

104. See International Standards Organization 14001, *Environmental Management Systems-General Guidelines on Principles, Systems and Supporting Techniques*, 4.0-4.1 (1996) [hereinafter *ISO 14001*]; see also TOM TIBOR, *ISO 14000: A GUIDE TO THE NEW ENVIRONMENTAL MANAGEMENT STANDARDS* (1996) (setting forth a detailed description of the standards).

105. See Rechtschaffen, *supra* note 100, at 1259. In this stage, organizations should carry out an initial environmental review ("EIR") which should consist of (1) an examination of the organization's existing environmental management practices; (2) an assessment of feedback from the investigation of previous accidents; (3) an analysis of the legal and regulatory requirements applicable to the organization; and (4) an identification of the organization's significant environmental "aspects." Christopher Sheldon & Ed Rowland, *ONE STEP BEYOND: Making ISO 14001 and TNS Work Together 7* (1998 draft) (on file with author).

106. See Rechtschaffen, *supra* note 100, at 1259.

107. See *id.* at 1260.

108. See Kranz & Burns, *supra* note 33, at 9.

109. Sheldon & Rowland, *supra* note 105, at 4.

supports a big enough strategic vision to make the investment pay off."<sup>110</sup> "Any company seeking ISO 14001 certification will need some type of framework to analyze its environmental impacts and prioritize options for continual improvement... The Natural Step (TNS), because it focuses on content (not process) and is based on a systems perspective, and focuses on root causes of environmental problems, fits particularly well with ISO 14001."<sup>111</sup> The long-term vision provided by The Natural Step will serve as the anchor for the ISO 14001 program and will enable the program to reflect the principles of sustainability embraced within The Natural Step model. Moreover, it provides value to those implementing an ISO 14001 program in all phases of the cycle—identifying those environmental aspects in which to improve, setting targets and objectives, training all employees within the organization about the policy and program, and performing the periodic management review and analysis.<sup>112</sup>

The specific area where The Natural Step will be most influential in its impact on an ISO 14001 program is in its benchmarking capacity. Here, The Natural Step's system conditions are utilized to help an organization evaluate its current situation, gain a vision of where it needs to go and develop a program for achieving its goals.<sup>113</sup> First, "an examination is carried out [regarding the] organisation's [sic] environmental aspects and impacts" to identify "how the organisation's [sic] goods and services and other activities violate the system conditions."<sup>114</sup> The Natural Step system conditions can be used to classify those findings in terms of discerning which areas are the most ecologically harmful.<sup>115</sup> Second, the organization analyzes the ways in which it could perform those operations, manufacture those products

and/or engage in those other activities to meet the system conditions.<sup>116</sup> This stage will define the frame and sustainable vision for the organization and should have significant influence on the policies and programs implemented by the organization.<sup>117</sup> Third, the organization develops programs that will assist it in achieving its defined future vision.<sup>118</sup> This will enable the organization to use the goal as the starting point for development of the program and "look[] back from there and work[] out how to chart a path toward that future. This approach [is] known as systems planning through 'back-casting.'"<sup>119</sup> Here, the organization should embark upon a "a broad strategic and expansive consideration of the types of measures and initiatives that can be taken at each stage."<sup>120</sup> Finally, top management must support the policies and programs, establishing that their application is carried through.

#### D. Practical Application Results in the Commercial Setting

The Natural Step model already has demonstrated its own applicability. The model is "spreading among corporations and municipalities in and outside of Sweden that learn to apply it in an autonomous way."<sup>121</sup> Many companies that have adopted The Natural Step's model have achieved increased environmental compliance and eco and energy efficiencies, reduced costs and liabilities, improved life-cycle performance and gained a competitive advantage.<sup>122</sup> These companies demonstrate that it is in their long-term best interest for businesses to adopt The Natural Step principles, ensuring that the business continues well into the twenty-first century. The four companies discussed in detail below—IKEA, Scandic Hotels, Interface and Collins Pine Company—all have reported significant cost savings from

110. Kranz & Burns, *supra* note 33, at 12.

111. *Id.* at 13.

112. See NATTRASS & ALTOMARE, *supra* note 3, at 177-84.

113. See Sheldon & Rowland, *supra* note 105, at 3.

114. *Id.*

115. See *id.* at 8.

116. See *id.* at 3.

117. Here "organisations [sic] are encouraged to ask

themselves the fundamental question, i.e. 'what essential services is the organisation [sic] providing and how could it provide those services while meeting the system conditions?'" *Id.*

118. See *id.*

119. *Id.* at 8.

120. *Id.*

121. Robèrt, *supra* note 3, at 90-91.

122. See generally NATTRASS & ALTOMARE, *supra* note 3.

their sustainability initiatives, that directly result in benefit to the companies' bottom lines.<sup>123</sup>

IKEA, the Scandinavian-designed household products retailer, began applying The Natural Step to the company's practices in 1990.<sup>124</sup> The company embraced The Natural Step based on input from their customers in the mid-to-late 1980s over concerns about the environmental and health effects of their products and as a result of stricter environmental regulations pertaining to the maximum level of emissions allowed from formaldehyde off-gassing in their products. During this time, IKEA was also being criticized for its packaging waste, its use of PVC plastic (which contain dioxins), its catalog regarding the amount of trees felled each year, the use of chlorine, and the amount of waste generated in its production.<sup>125</sup> IKEA was eventually sued by the Danish government in the mid-1980s for violating the country's formaldehyde emissions regulation and for destroying the company's public image, resulting in a 20% drop in sales in the Danish market.<sup>127</sup> Furthermore, in 1992, the company was forced to recall all of its bookshelves containing formaldehyde which "cost IKEA and its suppliers tens of millions of dollars."<sup>128</sup>

Consequently, IKEA began to take environmental issues very seriously.<sup>129</sup> Based on The Natural Step principles, the company developed an "Eco-Plus" line of products and has revolutionized its organization to integrate sustainability principles into daily decisions and practices in a comprehensive and broad-based manner.<sup>130</sup> The Natural Step has helped the company to improve its environmental per-

formance in every component of its activities, including material use, product design, future disassembly and recycling of its products, and its transportation and distribution systems. "In the U.S., IKEA is working with the United States Environmental Protection Agency on their Green Lights Program which encourages the use of energy-efficient lighting."<sup>132</sup> As a result, IKEA U.S. has "reduced its kilowatt demand by 781 kw and kilowatt hour usage by more than three million."<sup>133</sup> In particular, IKEA has learned that retrofitting its stores with fluorescent lighting can generate up to \$86,000 in annual savings per store.<sup>134</sup> The expected savings to IKEA from various components of that program exceed \$500,000 annually.<sup>135</sup> The company has made a remarkable transformation over the last decade, becoming a model for the sustainability movement. By achieving annual worldwide sales in excess of \$7 billion, which is more than double its revenues from 1990, IKEA has demonstrated that improving a company's environmental performance can better its bottom line.<sup>136</sup>

Scandic Hotels began using The Natural Step in 1993 when Scandic's CEO "decided that concern for the environment needed to be a core unifying value for the company."<sup>137</sup> At the time, the hotel chain was on the verge of bankruptcy and had generated up to \$50 million in losses from the previous three years of operation.<sup>138</sup> Scandic has been very successful at integrating environmental considerations into all aspects of its day-to-day operations.<sup>139</sup> The company developed an environmental barometer and index to track its environmental progress.<sup>140</sup> Scandic also created a program focusing on resource efficiency, sustainability

123. *See id.*

124. *See id.* at 44; *see also id.* at 47-74 (providing for a detailed analysis of IKEA's environmental policies and its adoption of The Natural Step).

125. *See id.* at 50.

126. *See id.* at 51.

127. *See id.*

128. *Id.* at 52.

129. *See id.*

130. *Id.* at 59-74.

131. *See id.* at 65-66, 68-69.

132. *Id.* at 70.

133. *Id.*

134. *See* Heidi Owens, *IKEA: A Natural Step Case Study* (Feb. 1998) (unpublished manuscript, on file with the *Northwest Earth Institute*).

135. *See id.*

136. *See* NATTRASS & ALTOMARE, *supra* note 3, at 47-49.

137. *Id.* at 81; *see also id.* at 75-100 (providing for a detailed analysis of Scandic Hotel's environmental policies and its adoption of The Natural Step).

138. *See id.* at 76.

139. *See id.* at 89.

140. *See id.*

and dematerialization that measures "the total energy and water consumption, and unsorted waste, at each hotel on a monthly basis."<sup>141</sup> Climate and other factors, such as the number of guests per night, also are keyed into the program in order to make true comparisons of the percentage savings of energy and water and waste.<sup>142</sup> By increasing efficiency in these areas, Scandic believes it will have a competitive advantage in the future, especially in those countries where the prices of resources are rising faster than inflation.<sup>143</sup> The company estimates that savings from this program "go straight to the bottom line as increased profits."<sup>144</sup> In 1997, the most recent year of record, the program generated roughly \$800,000 in savings.<sup>145</sup>

"To date, Scandic has documented over 2,000 individual measures" resulting in environmental performance improvements.<sup>146</sup> The most intriguing, perhaps, is "the innovation of a 97 percent recyclable" (or biodegradable) hotel room.<sup>147</sup> Scandic realized that, in the long-term, these rooms were less expensive to operate than their non-ecologically friendly counterparts.<sup>148</sup> Energized by its sustainability transformation, Scandic is enjoying record profits, reaching more than \$25 million for 1997 "and has become one of Europe's most successful hotel chains."<sup>149</sup>

Interface, Inc., "the world's largest producer of contract commercial carpet", began using The Natural Step in 1996.<sup>150</sup> Interface was the first American company to adopt The Natural Step framework.<sup>151</sup> Interface seeks to be the first

in industrial ecology and to be a model for sustainable, or even restorative, enterprises worldwide.<sup>152</sup>

We see the cyclical nature of ecosystems as providing a clear design for our future. Interface will use these principles as a guide to reduce its impact and footprint on the planet. At the same time, we will actively and creatively design new means of manufacturing that will eliminate the waste we now create. Thus it is a long-term commitment, one that cannot succeed overnight . . . . We have much to do, but much to work with.<sup>153</sup>

Interface believes that to be financially sustainable, the company must first become environmentally sustainable.<sup>154</sup> In order to reach this goal, Interface implemented a program called EcoSense, which measures its environmental performance and its progress toward sustainability.<sup>155</sup> Interface tracks and analyzes all of the materials and energy used by the company.<sup>156</sup> It also developed a zero-waste ideology waged through a program called Quality Utilizing Employee Suggestions and Teamwork ("QUEST") which aims to "eliminate the concept of waste from Interface operations."<sup>157</sup> Specific targeted priority is also given to the use of benign emissions, renewable energy, resource-efficient transportation, the delivery of services instead of materials, and the redesign of processes and products

141. *Id.* at 90.

142. *See id.*

143. *See id.* at 90-91.

144. *Id.* at 91.

145. *See id.* at 92.

146. *Id.* at 76.

147. *Id.* at 96. "Approximately 2,000 rooms are being refurbished each year [into 97 percent recyclable rooms] with an estimated decrease per year of 90 tons of plastic, 15 tons of metals, and 50 percent of mercury." *Id.* at 97. To date, approximately one-quarter of Scandic's rooms in the Nordic region are these new eco-rooms. *See id.*

148. *See id.*

149. *Id.* at 76-77.

150. *Id.* at 44, 103; *see also id.* at 101-24 (providing for a

detailed analysis of Interface, Inc.'s environmental policies and its adoption of The Natural Step); RAY C. ANDERSON, MID-COURSE CORRECTION—TOWARD A SUSTAINABLE ENTERPRISE: THE INTERFACE MODEL (1998) (describing the transformation of Interface, Inc. by the founder, Chairman and CEO of the corporation). Additional information can be found in Interface's own sustainability report which it is a detailed analysis of the company's 1996 performance data and their long-term goals and solutions. *See generally* Interface Sustainability Report (1997) (on file with author).

151. *See* NATTRASS & ALTOMARE, *supra* note 3, at 112.

152. *See id.* at 111.

153. Interface Sustainability Report, *supra* note 150, at 11.

154. *See* NATTRASS & ALTOMARE, *supra* note 3, at 101.

155. *See id.* at 111-22.

156. *See id.* at 115.

157. *Id.* at 116.

into cyclical flows.<sup>158</sup>

In fact, the company has integrated a sustainability vision into every aspect of its operations.<sup>159</sup> Meanwhile, The Natural Step provides Interface with a much-needed compass to indicate whether the company is on course to its final destination. In the first four years following implementation of sustainability initiatives, Interface saved approximately \$76 million by eliminating resource waste.<sup>160</sup> In addition, its innovative carpet designs, prompted by sustainable criteria,<sup>161</sup> show real promise of significantly reducing the required quantity of input per unit of output.<sup>162</sup> The company is thriving financially: since 1993, Interface's sales have nearly doubled, growing to \$1.135 billion in 1997.<sup>163</sup>

Collins Pine Company, like Interface, began using The Natural Step in 1996. In the logging industry, Collins Pine has proven itself as an ecological steward due to the manner in which the health of the forest land owned and managed by the company is maintained. For example, the company's Almanor forest land, comprising 94,000 acres (nearly one-third of its total forest holdings), has been logged continuously since 1943; however, "this forest has a higher inventory of wood standing and growing than when logging began" over five decades ago.<sup>164</sup> Under Collins Pine's philosophy the company "reaps the interest on the growth of their forest while protecting the principal."<sup>165</sup> The company has "understood that the trio of a healthy forest ecosystem, jobs in the community, and profits for the company [are] intertwined and [form] an unbreakable web. Destroy or overharvest the ecosystem and you destroy the chance of sustainable jobs and sustainable profits."<sup>166</sup>

The Natural Step "perspective has helped

Collins [Pine] to examine every aspect of its business through the lens of 'strategic sustainability.'"<sup>167</sup> The Natural Step framework has enabled the company to develop the following initiatives: (1) curtail point source emissions; (2) attain zero waste water at all sources; (3) eliminate waste to landfills; (4) maximize use of renewable energy; (5) educate and inspire all employees; and (6) provide support to the community.<sup>168</sup>

With a vigorous commitment from the company's top management, Collins educated every employee about sustainability, utilizing a simultaneous top-down/bottom-up approach. Managers now review all expenditures to ensure that new capital investments are consistent with the four system conditions . . . . Beyond this, they are reviewing long-range strategic decisions to ensure their alignment with a sustainability perspective. Twenty-one projects currently comprise the company's "Journey to Sustainability" initiative.<sup>169</sup>

While the initiatives are still in their early stages, Collins Pine already has realized some tangible benefits from The Natural Step influence. By recycling sander dust from their particle board production process, the company generated from \$500,000 to \$750,000 savings because they did not have to upgrade the boiler used to burn such materials.<sup>170</sup> The company also eliminated the need to spend an estimated \$520,000 a year on other raw material costs because the company found ways in which to use the recycled sander dust.<sup>171</sup> "Savings for reduced powerhouse steam is estimated to be \$152,000/year, and the replacement of six

158. *See id.*

159. *See id.* at 115.

160. *See id.* at 120.

161. *See id.* at 44; *see also id.* at 125-145 (providing for a detailed analysis of the Collins Pine Company's environmental policies and its adoption of The Natural Step).

162. *See id.* at 192.

163. *See id.* at 103.

164. *Id.* at 126.

165. *Id.*

166. *Id.* at 125.

167. Russell S. Barton, For Collins Pine: *The Journey to Sustainability Follows The Natural Step*, UNDERSTORY: SUSTAINABLE DEVELOPMENTS FROM THE WORLD OF WOOD, Spring 1998, at 5.

168. *See NATTRASS & ALTOMARE, supra* note 3, at 136.

169. Barton, *supra* note 167, at 5.

170. *See NATTRASS & ALTOMARE, supra* note 3, at 142.

171. *See id.*

Pallmann generators provided savings of approximately \$118,000/year.<sup>172</sup> The company's renovated "waste traps are recovering more than 90 percent of what previously was going into wastewater, at estimated cost savings of \$25,000/year due to reduction in natural gas, electricity to pump water, and chemicals."<sup>173</sup>

Other examples of commercial enterprises that have begun to use The Natural Step framework in their business operations in the United States include Placon, Inc., Mitsubishi Electric America, and Oki Semiconductor. Placon is currently working on several initiatives to build sustainability into their operations.<sup>174</sup> These initiatives include

developing a design database to aid in the assessment of materials for packaging that are more in line with the four System Conditions, considering a new product line designed around the principles of sustainability, developing a project to shift the sources and use of energy in our plant and building operations, and conducting company-wide education on The Natural Step.<sup>175</sup>

Mitsubishi Electric America is using The Natural Step "principles as a framework to tie its environmental initiatives together, and it is...incorporating [The Natural Step] model into its ISO 14001 implementation process."<sup>176</sup>

At each step, the [Mitsubishi Electric America] plants implementing ISO 14001 are looking at ISO through [The Natural Step] lens, . . . Most of the plants are still writing procedures and developing systems. However, the plants are already doing so much to reduce waste, toxics use, and energy use that the people building the ISO

program already know what direction they need to go in. [The Natural Step] informs many things, but will become even more useful as a framework later on when people start to think of the next step.<sup>177</sup>

Oki Semiconductor also has begun to adopt The Natural Step.<sup>178</sup> The Natural Step principles have helped Oki Semiconductor to reduce the company's use of toxics by ninety-eight percent and related toxic waste by seventy-seven percent which results in \$60,000 annual savings for the company.<sup>179</sup> Furthermore, the switch to The Natural Step practice has lowered the company's insurance premiums by \$5,000 annually because of the company's improved environmental performance.<sup>180</sup>

The companies discussed above demonstrate that The Natural Step has proven itself as a valuable planning model for concrete economic practice. For businesses wanting to make skillful investments, use of The Natural Step framework will result in cost savings over the long-term and also will reveal how a business can direct its activities to avoid exposing it to the uncertainties of future ecological, regulatory, and public pressures because when such issues develop, these complications directly result in costing the organization time, money and/or good-standing among its customer community.<sup>181</sup> All of these factors directly affect a company's bottom line, whether it be from increased costs in handling the problem or decreased profits from its customers choosing to take their businesses elsewhere. The Natural Step can help to ensure that these environmentally-related problems never arise and can provide a crucial strategy for gaining a competitive advantage. By empowering the company with a greater understanding of envi-

172. *Id.* at 142-43.

173. *Id.* at 141.

174. See Joan McNulty, *The Whole Package: Placon, Inc.*, THE NAT. STEP NEWSLETTER, Spring 1998, at 7.

175. *Id.*

176. Mitsubishi Electric America Combines ISO 14001 and The Natural Step, BUS. AND THE ENV'T (Cutter Information Corp., Arlington, Mass.) 1998, at 1 (reprint from Vol. 9, No. 2).

177. *Id.* at 2 (quoting Susan Burns).

178. See Interview with Larray Chalfan, President and CEO of Oki Semiconductor Manufacturing, in Eugene, Ore. (Nov. 15, 1998) (on file with author).

179. See *id.*

180. See *id.*

181. See Kranz & Burns, *supra* note 33, at 8.

ronmental issues, The Natural Step can improve the company's ability to "anticipate...changes in the market and in society."<sup>182</sup> Furthermore, as society continues to use up the remaining available natural resources, the "cost of moving toward sustainability" is increasing.<sup>183</sup> In other words, the cost of not moving toward sustainability can only increase over time.<sup>184</sup> "Some companies will be put out of business by these costs, and others will spend a lot playing 'catch-up'-following as quickly as they can in the tracks of industry leaders or reacting to unexpected changes in public mood or legal requirements."<sup>185</sup> Gaining this competitive advantage is critical. Thus, it is indisputable that it is in a company's best interest to ensure that it addresses these issues in ways that will benefit the company in the long-term.<sup>186</sup> If a company can eliminate these uncertainties in a cost-effective manner, the company gains value and, in addition, becomes a part of the solution toward a sustainable, or even restorative, economy.

Not only has The Natural Step assisted businesses improve their bottom line, it has also proven valuable in other ways as well. By applying "a systems approach to explaining the linkages between the ecology and the economy, The Natural Step is a remarkably effective educational tool."<sup>187</sup> The Natural Step distills the complexity of environmental issues, provides a common language to the concepts and perceptions, and helps to create awareness, understanding, and enthusiasm for sustainability initiatives. It provides a means to assist business employees to "understand their relationship as a company and as individuals, to the natural world."<sup>188</sup> Moreover, embracing The Natural Step principles has been shown to generate other beneficial effects on an organization's workforce by increasing employee

enthusiasm and morale and employee satisfaction, which results in lower staff turnovers.<sup>189</sup> This in turn enables companies to attract and retain the best available employees in the marketplace which would generate an overall higher quality work product.<sup>190</sup> It also enables companies to form "long-term customer relations through increased consumer awareness of the environment."<sup>191</sup> By holding similar visions or mental models of sustainability, the company develops a closer relationship with its customers and its public image is enhanced. "How a company is perceived [by the public] is vital to its success."<sup>192</sup>

The Natural Step model also provides "a rational, science-based platform" upon which to base a strong positive vision for an organization.<sup>193</sup> It "stimulates innovation and out-of-the box thinking [by providing] a framework for design innovation."<sup>194</sup> Examples from the four companies discussed in detail above demonstrate that numerous product innovations develop as a direct result of a proactive sustainability program based on The Natural Step model. Furthermore, by attaining better environmental performance, a company improves the prospect that it will survive as a successful and profitable organization, gaining valuable security in its future.

## V. Combining Legal Approaches With The Natural Step

Attaining a sustainable economic system can only come about through a sweeping reform of existing law that is complemented by a number of additional approaches.<sup>195</sup> This will entail establishing a more accountable government that can institute "a broad array of policy changes on issues of global trade, education, economic development, econometrics (includ-

182. See NATTRASS & ALTOMARE, *supra* note 3, at 85.

183. *Id.* at 198.

184. *See id.*

185. *Id.*

186. Moreover, implementing these changes at a later stage can result in higher costs. *See id.* at 135.

187. Kranz & Burns, *supra* note 33, at 8.

188. NATTRASS & ALTOMARE, *supra* note 3, at 73.

189. *See id.* at 195.

190. *See id.*

191. *Id.* at 85.

192. *Id.* at 197.

193. *Id.* at 98.

194. *Id.* at 74.

195. *See e.g.* Hawken, *supra* note 4, at 53.

ing measures of growth and well-being), and scientific research." It will also include significantly changing the way in which government operates and how it influences societal behavior.<sup>196</sup>

While there are many issues that need to be addressed when developing a strategy to bring about a sustainable economy, this article focuses on the following: keeping the functions of government and commerce separate; incorporating localized governance and stakeholder involvement; and establishing subsidies, taxes, and other economic incentives for sustainable commercial behavior. This article concentrates on these three issues because of their importance in fostering The Natural Step framework. Depending upon the type of environmental improvements that take place from furthering these policies, such progress could result in meeting any or all of The Natural Step's four system conditions. Furthermore, lawyers can have a significant role in bringing about substantial changes in these areas as well.<sup>197</sup>

In a holistic view, the issues that also should be examined in the sustainability context include environmental justice, devising a more localized business focus, and using behavioral psychology to generate a greater understanding of sustainable principles. Environmental justice involves the notion of fairness. Environmental justice issues are

raised when a concentration of environmental hazards exists in urban areas affecting low-income minority communities at disproportionate rates when compared to those of the rest of society.<sup>198</sup>

Maintaining a dominant small business force is critical to a sustainable economy. Due to their size, small businesses are closer to their customers and "are in a better position to organize and educate those customers to perceive the difference between a product made sustainably and one that is not."<sup>199</sup> While currently, the government institutes elaborate systems of subsidies to big business, government must reverse this trend to allow the smaller, entrepreneurial, and restorative businesses to gain the competitive advantage.<sup>200</sup> Many of the decisions businesses make fail to recognize the benefits of being smaller and more localized, which enable them to be in a better position to adapt to changing ecological and regulatory constraints as well as the constantly evolving commercial marketplace.<sup>201</sup> Furthermore, using behavioral psychology as an approach to achieving The Natural Step principles can prove to be an effective means to change social values, habits, aspirations, and actions.<sup>202</sup> Multi-level behavioral psychology strategies can affect behavior at all levels of society (from the personal and family level to the neighbor-

196. *Id.*

197. *See* discussion *infra* Part IV.A.

198. *See* Douglas A. McWilliams, *Environmental Justice and Industrial Redevelopment: Economics and Equality in Urban Revitalization*, 21 *ECOLOGY L.Q.* 705, 758-61 (1994); *see also* Robert R. Kuehn, *The Environmental Justice Implications of Quantitative Risk Assessment*, 1996 *U. ILL. L. REV.* 103 (1996); Luke W. Cole, *Environmental Justice Litigation: Another Stone in David's Sling*, 21 *FORDHAM URB. L.J.* 523 (1994).

199. HAWKEN, *supra* note 9, at 138.

200. *See id.* Large corporations have created a multi-billion dollar industry of lobbyists, public relation firms, and other forms of influences that have domineered our legislative and judicial processes and have taken over our political system. *See id.* at 109, 123.

201. Nevertheless, an opposing argument states that large transnational corporations, rather than small businesses, have the most potential to disseminate good ethical standards because they have the capacity to spend time, effort, and money doing so. *See* Letter from Karl-Henrik Robèrt, *supra* note 3, at 1. "It is statistically demonstrated that it is big companies that are close to customers, that have spent relatively [more] [of the] resources on 'moral' issues like the environment." *Id.* While there

are large corporations acting ethically and responsibly, the major threats we face, both environmentally and politically, stem from these large corporations as well. *See id.*

202. *See* Collin & Collin, *supra* note 1, at 412; Russell E. Glasgow et al., *A Behavioral Systems Approach to Transportation: Conceptual Framework and Intervention Implications for Reducing Vehicle Miles Traveled 4* (1997) (unpublished manuscript, on file with the Oregon Research Institute).

hood/community and media/policy/culture levels).<sup>203</sup> In addition to being multi-leveled, intervention strategies also should be multi-faceted<sup>204</sup> and they should focus on both antecedents/stimuli and consequences of behavior (in social, political, and economic contexts).<sup>205</sup>

### A. The Lawyer's Role

By serving as a classical "instrument of social cohesion and social discourse about critical concerns and community resources... [law has] developed a rhetorical capacity of influencing right action."<sup>206</sup> The law can keep government responsible and honest, generate more localized governance by fostering broad citizenship participation and democratic consensus in the decision-making process, assist in promoting public understanding of critical social issues, and establish subsidies and economic incentives to encourage sustainable activity- all of which are vital to successfully implementing The Natural Step in a comprehensive manner.

Lawyers can help in bringing about the necessary changes in government that are needed to guide society on a sustainable path. In fact, lawyers are responsible for examining and challenging critical societal problems and dilemmas.<sup>207</sup> Members of the legal profession and the government have a duty to the rest of society to improve the law in a manner that promotes the public good.<sup>208</sup> Unlike most other professions, lawyers are in a unique situation

which imposes upon them the obligation to take on a greater role in effectuating societal change. Accordingly, lawyers should proactively seek to implement changes through the political process, through their role as government regulators, and through their interaction with clients, whether they be individuals, corporations, municipalities, or other organizational entities.

The nature of a lawyer's role in managing his or her clients may be changing quite rapidly. We have reached a time when certain activities are known with scientific certainty to cause particular social and environmental harms. As we have seen with the tobacco industry, we are now in an era where these destructive activities, while continuing to be conducted with the knowledge that they cause public harm, will lead to expanding widespread tort claims to repay society for the damages they have caused. Thus, the duty of directors of corporations in this new arena of socially responsible business will mean more than merely having to comply with environmental regulatory schemes. Tort liability (among others) will increase the duty of care that they owe to the public in the ecological context.<sup>209</sup> In fact, the Security Exchange Commission's environmental disclosure requirements already establish the duty to disclose to the public certain environmental information.<sup>210</sup>

Thus, lawyers, as counsel to these organizational entities, also must shift their thinking. The duty that lawyers owe their clients would

203. See Shawn M. Boles et al., *The Role of Behavioral Science in Addressing Environmental Problems: Psychological Approaches to Sustainability and Equity* 9 (April 21, 1996) (unpublished manuscript, on file with the Oregon Research Institute). Environmental behaviors can be conceptualized at five different levels, which are (1) personal, (2) family/significant other, (3) work-site/school/organization, (4) neighborhood/community, and (5) media/policy/culture. See *id.* at 8. The levels can be represented as portions of a pyramid, with the personal level at the top of the pyramid and the media/policy/culture level at the bottom. See *id.* "The pyramid shape is utilized to illustrate the point that the more distal factors, those toward the bottom of the pyramid, impact far larger numbers of persons: these larger social factors have a broader reach and correspondingly occupy a larger portion of the pyramid." *Id.* Accordingly, advertising and publicity campaigns, and outreach programs have proven successful in generating environmental awareness in the Netherlands. See JOHNSON, *supra* note 4, at 159-60.

204. See Glasgow, *supra* note 194, at 7.

205. See Boles, *supra* note 195, at 7.

206. Collin & Collin, *supra* note 1, at 455.

207. See MODEL RULES OF PROFESSIONAL CONDUCT Preamble, 1, 6 (1996).

208. See *id.*

209. See REVISED MODEL BUSINESS CODE ACT §8.30 (1994) (where activities in furtherance of widespread ecological damage could be viewed as clear and gross negligence). Some authors reasoned that EMSs, such as the ones described *supra* Part III.C-D, may comprise the applicable standard of care. See Naomi Roht-Arriaza, *Shifting the Point of Regulation: The International Organization for Standardization and Global Lawmaking on Trade and the Environment*, 22 *ECOLOGY L.Q.* 479, 517 (1995).

210. See generally Robert H. Feller, *Environmental Disclosure and the Securities Laws*, 22 *B.C. ENVTL AFF. L. REV.* 225 (1995); Tracy Soehle, Comment, *SEC Disclosure Requirements for Environmental Liabilities*, 8 *TUL. ENVTL. L.J.* 527 (1995).

necessitate a drastic change in their counsel of business policy. As legal counsel, a lawyer's role would require that she recommend that her clients exist more in line with The Natural Step principles in order to avoid potential future liability.<sup>211</sup>

The Model Rules of Professional Conduct set forth that, when advising a client, a lawyer may consider "moral, . . . social and political factors that may be relevant to the client's situation."<sup>212</sup> Because a lawyer may volunteer advice without being asked, lawyers should take a more proactive role in bringing about greater socially responsible behavior among their clients.<sup>213</sup> A lawyer's duty justifies that they incorporate a long-term analysis and vision in order to promote long-term prosperity for their client as a primary goal.

Corporate lawyers who acquire this long-term vision and who are employed by companies working toward sustainable practices also need to become actively involved in establishing good public policy. These lawyers should use their legal skills and knowledge to change laws in ways that would increase environmental regulatory standards to those which their organizations currently comply with or are working toward meeting in the future. In doing so, their clients or employers will gain an enormous competitive advantage while the lawyers in turn, serve the public good trying to protect our natural ecosystem more effectively .

Consequently, an additional significant value of The Natural Step is its ability to help lawyers attain a systems-based perspective and approach to client counseling and decision-making. Lawyers with knowledge and understanding of The Natural Step acquire an important and tangible benefit. These lawyers gain a set of skills that will enable them to take their clients beyond compliance to substantially reduce or eliminate environmental liabilities,

realize eco and energy efficiencies and gain a competitive advantage. The reduction or elimination of environmental liabilities can potentially save the client thousands, if not millions, of dollars in exposure to future legal fees and lawsuit verdicts. Moreover, adoption of The Natural Step model can lead to significant cost savings, better design innovation, improved public perception, and greater worker satisfaction, all of which can benefit the company's bottom line. These attributes provide a further basis for lawyers to recommend implementation of The Natural Step principles to their clients.

Furthermore, lawyers have a critical role in advancing the three concepts discussed in the following section: keeping the functions of government and commerce separate; incorporating localized governance and stakeholder involvement; and establishing subsidies, taxes, and other economic incentives for sustainable commercial behavior.

## B. Government Reinvention of Environmental Regulation

The Natural Step framework provides an important set of criteria for determining whether government is supporting and promoting sound ecological principles in its regulatory efforts. Likewise, The Natural Step provides a framework for government to take a more systems-based approach to environmental regulation.

In many ways, The Natural Step complements many of the existing laws and programs already in place.<sup>214</sup> Under the Clinton Administration, the United States Environmental Protection Agency ("EPA") has brought a multitude of government reinvention efforts, totaling more than sixty programs.<sup>215</sup> Most of EPA's initiatives are structured as voluntary efforts, giving industry and the public an opportunity

211. See MODEL RULES OF PROFESSIONAL CONDUCT, Rule 2.1.

212. *Id.*

213. See *id.* at Rule 1.4.

214. At the state level, The Natural Step already has been included as a definitional reference of sustainability in a State of Connecticut law. See State of Connecticut General Assembly, January Session, 1999 (visited Aug. 22, 1999) <<http://www.cga.state.ct.us/ps99/amd/S/1999HB-06830-ROOSA-AMD.htm>>. The law, entitled "An Act Concerning Exemplary

Environmental Management Systems," was passed on June 8, 1999 as House Bill 6830, Senate Amendment A. See *id.*

215. See United States Environmental Protection Agency, EPA *Reinvention Activities: Full Listing* (last modified Dec. 22, 1998) <<http://www.epa.gov/reinvent/notebook/byall.htm>>; see also U.S. Environmental Protection Agency, *Reinventing Environmental Regulation* (1995); U.S. Environmental Protection Agency, *Common-Sense Strategies to Protect Public Health: A Progress Report on Reinventing Environmental Regulation* (1996).

to participate, as opposed to mandating new regulatory approaches. In fact, many of the programs "depend on industry to bring forth specific proposals, placing both government regulators and private sector public interest representatives in a fundamentally reactive posture."<sup>216</sup> Thus, "without industry cooperation, reinvention cannot proceed."<sup>217</sup> While many of the initiatives include concepts that this article emphasizes as critical to bringing about a sustainable future, such as allowing the regulated community greater flexibility to reach performance standards, more localized governance and increased stakeholder involvement in the decision-making process, and establishing various financial incentives for sustainable commercial behavior, few incorporate a holistic or ecosystem-based approach to comprehensively foster The Natural Step framework. The EPA programs that have significant overlapping philosophies with The Natural Step model are Community-Based Environmental Protection, Brownfields, and the Common Sense Initiative.<sup>218</sup>

EPA's Community-Based Environmental Protection ("CBEP") is perhaps the most similar program to The Natural Step philosophy. Its approach is "place-based" and not media or issue-based.<sup>219</sup> Thus, instead of concentrating on a medium or a particular problem, CBEP

focuses on the health of an ecosystem and the behavior of humans who live within the ecosystem's boundaries.<sup>220</sup> The CBEP approach also incorporates stakeholder involvement, which in turn facilitates comprehensive identification of local environmental problems, the setting of priorities and goals that reflect overall community concerns, and the generation of comprehensive, long-term solutions.<sup>221</sup> Because of its holistic focus, in theory CBEP meets all four system conditions. Like The Natural Step, CBEP's ecosystem-based approach to environmental protection addresses the rate of extraction and dispersion of materials from the earth's crust (first system condition), the rate that substances are produced and dispersed by human society (second system condition), the condition of the productive capacity and diversity of the ecosystem (third system condition), and the fair and efficient use of resources (fourth system condition).<sup>222</sup>

Brownfields are "[a]bandoned, idled or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination."<sup>223</sup> The purpose of EPA's Brownfields Initiative is to clean up these abandoned, idled or under-used sites so that they can be developed and restored to their productive uses once again. The initiative takes

216. Rena I. Steinzor, *Reinventing Environmental Regulation: The Dangerous Journey from Command to Self-Control*, 22 HARV. ENVTL. L. REV. 103, 111-12 (1998); see also 60 Fed. Reg. 59,658 (1995) (stating that the programs use "innovative, non-prescriptive, consensus-based techniques to achieve environmental and public goals beyond those set by existing laws").

217. *Id.* at 112.

218. EPA's Sustainable Development Challenge Grants and Sustainable Industry also entail holistic approaches to environmental management within the programs. See United States Environmental Protection Agency, *EPA Reinvention* (visited Jan. 19, 1999) <<http://134.67.55.16:7777/DC/OSECWeb.nsf/Grants?OpenView>>; United States Environmental Protection Agency, *EPA Reinvention* (visited Jan. 19, 1999) <<http://www.epa.gov/oppeinet/oppe/isd/sipsum.htm>>.

219. United States Environmental Protection Agency, *About CBEP* (last modified Sept. 30, 1998) <<http://yosemite.epa.gov/osec/osechome.nsf/All/AboutCBEP?OpenDocument>>.

220. See *id.*

221. See *id.*; see also discussion *infra* Part IV.B.2.

222. "EPA's involvement in place-based, collaborative, and holistic environmental protection includes geographic pro-

grams such as the National Estuary Program, the Chesapeake Bay Program, and the Great Lakes Program . . . [which] have demonstrated on a large scale the advantages of a CBEP approach." *About CBEP*, *supra* note 219. EPA's Industrial Communities Project takes a very similar approach to that of CBEP. It seeks to generate a "place-based" focus to improve environmental protection programs in heavily industrialized and densely populated regions in a manner consistent with local economic and community priorities. United States Environmental Protection Agency, *Industrial Communities Project* (last modified Jan. 29, 1997) <<http://www.epa.gov/reinvent/notebook/icp.htm>>. In addition, EPA's Multi-Media Permitting pilot project and Partners for the Environment programs aim at addressing environmental problems more holistically to bring about better pollution prevention results. See United States Environmental Protection Agency, *Multi-media Permitting* (last modified Mar. 28, 1998) <<http://www.epa.gov/reinvent/notebook/mmp.htm>>; United States Environmental Protection Agency, *EPA Reinvention* (last modified Dec. 7, 1998) <<http://www.epa.gov/partners/pfe.htm>>.

223. United States Environmental Protection Agency, *Brownfields Glossary* (last modified Sept. 30, 1997) <<http://www.epa.gov/swerosps/bf/glossary.htm#brow>>; see also OFFICE OF TECHNOLOGY ASSESSMENT, STATE OF THE STATES ON BROWNFIELDS: PROGRAMS FOR CLEANUP AND REUSE OF CONTAMINATED SITES I (1995) [hereinafter *State of the States on Brownfields*]; H.R. 3352 at 1.

advantage of the existing infrastructure and other urban systems, such as electricity, sewer, water, transportation, and human resources, already in place at the site.<sup>224</sup> In addition, the Initiative seeks to empower states, communities, and other stakeholders in economic development to work together to "prevent, assess, safely clean up, and sustainably reuse brownfields."<sup>225</sup> Thus, if followed according to its mission, the Initiative would meet The Natural Step's third and fourth system conditions.<sup>226</sup> By preventing contamination, cleaning up, and sustainably reusing brownfields, the program satisfies the third system condition requirement that the ecosystem not be mismanaged or displaced in such a way that systematically deteriorates its productive capacity and its diversity. Likewise, because brownfields exist in low-income minority communities at disproportionate rates when compared with the rest of society, cleaning up these sites satisfies the fourth system condition requirement that the use of resources be fair and efficient.<sup>227</sup>

EPA's Common Sense Initiative ("CSI") incorporates a distinct approach to environmental protection and pollution prevention. CSI addresses environmental management by industrial sector rather than by environmental medium (air, water, and land).<sup>228</sup> EPA selected the automobile manufacturing, computer and electronics, iron and steel, metal finishing, petroleum refining, and printing industries to serve as CSI pilots to explore the industry-based, multi-stakeholder approach to environmental regulation.<sup>229</sup> In order to include all relevant interests in the decision-making process,

multiple stakeholders were invited to participate in the dialogue.<sup>230</sup> The diverse stakeholders seek ways to improve environmental performance within their specific industry both by looking at the traditional regulatory functions and by searching for new opportunities that have yet to be investigated or recognized.<sup>231</sup> While many proposals have been brought forth within the CSI subcommittees, the jury is still out on whether CSI will achieve its goals and generate improved environmental performance among the industrial sectors involved.<sup>232</sup> Depending upon the nature and substance of environmental improvement that results from the program, CSI could meet any or all of The Natural Step's four system conditions.<sup>233</sup>

### 1. Keeping the Functions of Government and Commerce Separate

The interaction between government and commerce must be separated. We must create a form of government that can perform its governmental functions without the influence of corporate business.<sup>234</sup> On the other hand, commerce must be allowed to operate on its own terms once the government takes political responsibility for enacting policies into law.<sup>235</sup> Commercial enterprise has proven over and over again that it has the ability to generate remarkable solutions through its vision and ingenuity. Accordingly, The Natural Step principles can be met if government leaders lay down the policies, are serious about enforcing them, and keep their own hands off commerce's ways and means of complying.<sup>236</sup> In this framework, there should be a flexible regulato-

224. See STATE OF THE STATES ON BROWNFIELDS, *supra* note 223, at 1.

225. United States Environmental Protection Agency, *Brownfields Mission* (last modified Sept. 30, 1997) <<http://www.epa.gov/swerosps/bf/mission.htm>>.

226. See Robèrt, *supra* note 3, at 86.

227. See Holmberg & Robèrt, *supra* note 39, at 3; see also McWilliams, *supra* note 198.

228. See Common Sense Initiative Council Federal Advisory Committee; Establishment, 59 Fed. Reg. 55,117, 55,117 (1994). The CSI was started in 1993. See Collin & Collin, *supra* note 24, at 75.

229. See United States Environmental Protection Agency, *CSI Home Page* (visited Jan. 19, 1999) <<http://www.epa.gov/commonsense/CSIApproach.html>>.

230. See *id.* "Stakeholder" refers to anyone who has some tangible or intangible interest in the outcome of the decision-making process. See also discussion *infra* Part IV.B.2.

231. See *id.*

232. See GENERAL ACCOUNTING OFFICE, PUB. NO. GAO/RCED-97-164, *REGULATORY REINVENTION: EPA'S COMMON-SENSE INITIATIVE NEEDS AN IMPROVED OPERATING FRAMEWORK AND PROGRESS MEASURES* (1997).

233. See Robèrt, *supra* note 3, at 86.

234. JACOBS, *supra* note 92, at 81.

235. See *id.* at 178; see also Steinzor, *supra* note 208, at 112 (discussing how reinvention projects give industry the flexibility to try new approaches).

236. See JACOBS, *supra* note 95, at 176; see also JOHNSON, *supra* note 4.

ry approach that establishes strict environmental performance standards but allows competition in industry to establish how those standards will be met.<sup>237</sup> Critics of the present regulatory framework claim that the system, by requiring the installation of a given technology, chills technological innovation and eliminates meaningful incentives for business to innovate for pollution prevention because business has no mechanism for obtaining approval of alternative approaches and no way to recover the costs of their original investment.<sup>238</sup>

Lawyers can play integral roles in establishing these policies. They can ensure that the types of laws and programs put in place will keep the functions of government and commerce separate. Through their work, lawyers can confirm that environmental protection laws are based on sound ecological principles and that the laws require that commerce meet strict environmental standards. Lawyers also can help to maintain that the regulatory structure is being properly followed and suitably enforced.

Many of the Clinton Administration's reinvention projects incorporate a more flexible regulatory approach in meeting environmental standards. EPA's Permits Improvement Team ("PIT") program does so while conceivably establishing a more protective performance

standard.<sup>239</sup> PIT seeks to involve public performance-based permitting which allows flexibility as to how a permittee will meet performance standards by shifting the focus towards the measurement and assurance of performance. Such a shift would improve the company's environmental performance with respect to The Natural Step's second system condition.<sup>240</sup> Although the PIT program is still in its conceptual stage, its goals are very promising.<sup>241</sup>

Project XL, which stands for "eXcellence and Leadership,"<sup>242</sup> is perhaps EPA's most prominent reinvention program. The pilot program allows the EPA to establish site-specific agreements with project sponsors to help the Agency redesign current approaches to public health and environmental protection.<sup>243</sup> "Sponsor" is defined broadly to include everything from a single manufacturing plant to a unit of local government to a military base or other facility.<sup>244</sup> Project XL allows individual facilities the flexibility to develop their own innovative strategies to environmental management and protection to achieve environmental results "superior" (either directly or indirectly through reinvestment of cost savings) to those reached by conventional regulatory and policy approaches.<sup>245</sup> EPA uses a two-part method for determining whether an XL

237. See Tom Lindley, *Green Plans: The Working Definition of Sustainability Panel Remarks at the 1998 Public Interest Environmental Law Conference* (Mar. 7, 1998). Lindley also advocates a sectoral-based approach, like with CSI, which breaks businesses down into particular industries and regulates them in that manner. See Robert Doppelt, *Green Plans: The Working Definition of Sustainability Panel-Remarks at the 1998 Public Interest Environmental Law Conference* (Mar. 7, 1998); see also Collin & Collin, *supra* note 24, at 75-78 (discussing the industry sector approach to United States environmental policy as demonstrated by the CSI).

238. See Cass R. Sunstein, *Paradoxes of the Regulatory State*, 57 U. CHI. L. REV. 407, 420-21 (1990); see also Richard B. Stewart, *Economics, Environment, and the Limits of Legal Control*, 9 HARV. ENVTL. L. REV. 1, 9 (1985).

239. Higher environmental standards may be gained through the consideration of ecosystem and community-based approaches to permit issuances. See United States Environmental Protection Agency, *Final Draft of Concept Paper on Environmental Permitting and Task Force Recommendations* (visited Jan. 19, 1999) <<http://www.epa.gov/epaoswer/hazwaste/permit/pit/pitdoc.txt>>.

240. See *id.* For example, where technologies are already proven or verified, there would be less need to perform technical reviews and less need to formally modify the permits. See *id.*

241. See *id.* EPA's Reinventing Effluent Guidelines, Reinventing PCB Disposal Regulations, and Reinventing Storm Water Permitting encompass similar objectives. See United States Environmental Protection Agency, *Reinventing Effluent Guidelines* (last modified Mar. 28, 1998) <<http://www.epa.gov/reinvent/notebook/reg.htm>>; United States Environmental Protection Agency, *Reinventing PCB Disposal Regulations* (last modified Mar. 28, 1998) <<http://www.epa.gov/reinvent/notebook/rpcbdr.htm>>; United States Environmental Protection Agency, *Reinventing Storm Water Permitting* (last modified Mar. 28, 1998) <<http://www.epa.gov/reinvent/notebook/rswp.htm>>.

242. Project XL for Communities is a similar EPA program that allows Project XL participation by communities that have developed particular projects. See *Regulatory Reinvention (XL) Pilot Projects*, 60 Fed. Reg. 27,282, 27,282 (1995).

243. United States Environmental Protection Agency, *XL at a Glance* (visited Jan. 19, 1999) <[http://yosemite.epa.gov/xl/xl\\_home.nsf/all/xl\\_glance](http://yosemite.epa.gov/xl/xl_home.nsf/all/xl_glance)>.

244. See *Regulatory Reinvention (XL) Pilot Projects*, 60 Fed. Reg. 27,282 (1995).

245. United States Environmental Protection Agency, *XL at a Glance* (visited Jan. 19, 1999) <[http://yosemite.epa.gov/xl/xl\\_home.nsf/all/xl\\_glance](http://yosemite.epa.gov/xl/xl_home.nsf/all/xl_glance)>.

project will achieve superior environmental performance. First, EPA develops a quantitative baseline estimate of what would have happened to the environment absent the project and compares that baseline estimate against the project's anticipated environmental performance. Second, EPA considers both quantitative and qualitative measures in determining whether the project's anticipated performance will be superior to the baseline.

EPA states that regulatory flexibility can be provided by establishing "site specific rules, alternative permits and waiver processes," in addition to "offering flexibility in its policies, guidance, procedures and other approaches."<sup>246</sup> "Firms participate in XL for many reasons. However, in general, firms that successfully develop and implement XL projects utilize the flexibility offered by the program to reap financial, competitive, and community benefits."<sup>247</sup> Virtually any regulatory requirement can be waived in exchange for the achievement of "superior" environmental performance.<sup>248</sup> Such strategies must be supported by stakeholders as well as affected State, local and tribal governments.<sup>249</sup> The program guidelines prescribe that project sponsors should provide stakeholders with any needed training on technical issues and collaborative processes. Unfortunately, this training does not appear to be a requirement. Notwithstanding the perceived "superior" environmental performance that should result, Project XL has been "under constant fire from national and local environmentalists and community representatives, who condemn it on the basis of both substance and process."<sup>250</sup> EPA has admitted making mistakes in the initial design of the program and has implement-

ed changes to attempt to address the problem that "superior" environmental performance is not being delivered as intended. Furthermore, participation from industry has been much less than expected, as industry is "increasingly discouraged by the unexpectedly high transaction costs of participation, "confused over the role of stakeholders, and frustrated over the length of the project review process and the conflicting signals from different levels of EPA staff."<sup>251</sup> Consequently, an unknown EPA staff member coined the slogan, "If it isn't illegal, it isn't XL."<sup>252</sup>

## 2. Green Plans: Localized Governance and Stakeholder Involvement

In the new, restorative economy, the solution lies in local and regional leadership.<sup>253</sup> In order to achieve a sustainable society, it will have to come from the grassroots up.<sup>254</sup> It will have to take on a process of inclusive dialogue where all viewpoints are represented and involved.<sup>255</sup> It involves a "holistic, bottom-up, community-based, multi-issue, cross-cutting, integrative, and unifying paradigm for achieving healthy and sustainable communities."<sup>256</sup> Government needs to rethink its approach to achieving social goals and must acknowledge its limits- that its lack of money, people, and knowledge make it impossible to oversee and calibrate all societal relationships.<sup>257</sup> It is more efficient and effective to give people a vision and let them figure out how to get there themselves. Therefore, government must facilitate the calibrations and get relationships in place so that they can work out their own agreements.<sup>258</sup>

246. *Id.*

247. Regulatory Reinvention (XL) Pilot Projects, 62 Fed. Reg. 19,872, 19,877 (1997).

248. See Steinzor, *supra* note 216, at 122-23.

249. United States Environmental Protection Agency, XL at a Glance (visited Jan. 19, 1999) <[http://yosemite.epa.gov/xl/xl\\_home.nsf/all/xl\\_glance](http://yosemite.epa.gov/xl/xl_home.nsf/all/xl_glance)>.

250. Steinzor, *supra* note 216, at 125.

251. TERRY DAVIES & JAN MAZUREK, INDUSTRY INCENTIVES FOR ENVIRONMENTAL IMPROVEMENT: EVALUATION OF U.S. FEDERAL INITIATIVES 3 (1996).

252. Steinzor, *supra* note 216, at 147. Other authors have noted that Project XL "may violate the letter of the nation's envi-

ronmental laws." Geltman & Skroback, *supra* note 24, at 33.

253. See HAWKEN, *supra* note 9, at 175.

254. See *id.* at 161.

255. See Collin & Collin, *supra* note 1, at 450.

256. National Environmental Justice Advisory Council Waste and Facility Siting Subcommittee, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, PUB. NO. EPA 500-R-96-002, Environmental Justice, Urban Revitalization, and Brownfields: The Search for Authentic Signs of Hope 3 (1996).

257. See Collin & Collin, *supra* note 1, at 431; see also Collin & Collin, note 24, at 45-47.

258. See Collin & Collin, *supra* note 1, at 431.

Green plans, which are government strategies aimed at moving society toward sustainability, should be established, as they have in such nations as the Netherlands,<sup>259</sup> New Zealand,<sup>260</sup> Canada,<sup>261</sup> and Singapore,<sup>262</sup> where they have achieved success (whereby the Netherlands and New Zealand provide the principal examples).<sup>263</sup> In addition to being comprehensive, integrated, and large-scale, green plans also are based on the critically important premise that our social and economic well-being depends on a healthy environment, and that we must manage our natural and physical environment in a sustainable fashion if we want to continue to meet our own needs and to allow future generations to meet theirs.<sup>264</sup> Green plans replace single-issue policies and incorporate comprehensive environmental, economic, and equity strategies developed through consultation with the major societal sectors.<sup>265</sup> Green plans incorporate a systems-based approach to solving environmental problems. They provide the governmental leadership with the methodology to take society beyond the media-by-media approach that currently governs our environ-

mental laws. Green plans also reduce bureaucracy, delegate responsibility to the appropriate parties, secure broad, long-term support and, most importantly, achieve results.<sup>266</sup> As such, green plans can bring about all of the recommendations discussed in the sections above.<sup>267</sup>

While green plans set environmental standards at national and regional levels, they are not directed from the top down.<sup>268</sup> Rather, they delegate to local authorities the responsibility for managing local environmental problems and implementing much of the respective components of the plan.<sup>269</sup> A "green plan is not a project, but a process, one that involves a shift in thinking about the ways in which we interact with the environment."<sup>270</sup> In particular, through government mandate, green plans can empower communities to take on many of the government's functions in order to implement government policy and monitor commercial activity more effectively and efficiently.<sup>271</sup> Accordingly, communities will possess a more active role in environmental public policy determinations. As they have in other countries, the government should contribute fund-

259. See Resource Renewal Institute, *A Summary of the Dutch (NEPP) National Environmental Policy Plan* (visited Jan. 12, 1999) <<http://www.rri.org/gparchive/nepp.html>>; see also Resource Renewal Institute, *National Environmental Policy Plan 2: Evaluation of Industry* (visited Jan. 12, 1999) <<http://www.rri.org/pgarchive/policyplan.html>> (providing an industry viewpoint of the green plan).

260. See Resource Renewal Institute, *Managing Resources in New Zealand* (visited Jan. 12, 1999) <<http://www.rri.org/gparchive/n2resources.html>>; see also Resource Renewal Institute, *New Zealand Resource Management Act* (visited Jan. 12, 1999) <<http://www.rri.org/gparchive/nzsumm.html>> (discussing the New Zealand Resource Management Act which implements the green plan); Resource Renewal Institute, *A Green Plan at the Crossroads-New Zealand's Resource Management Act: The Transition From Theory to Practice* (visited Jan. 12, 1999) <<http://www.rri.org/gparchive/n2crossroads.html>>.

261. See Resource Renewal Institute, *Canada's Green Plan: Working Together for a Sustainable Future* (visited Jan. 12, 1999) <<http://www.rri.org/gparchive/cansumm.html>>. Canada's Green Plan's goals include (1) Assuring clean air, water and land for all citizens; (2) Promoting sustainable use of renewable resources; (3) protecting our special spaces and species; (3) preserving the integrity of our North; (5) Ensuring global environmental security; (6) implementing environmentally responsible decision-making; and (7) minimizing the impact of environmental emergencies. See *id.*

262. See Resource Renewal Institute, *Where are Green Plans Already in Place* (visited Jan. 12, 1999) <<http://www.rri.org/primer/where.html>>.

263. See generally JOHNSON, *supra* note 4.

264. See *id.* at 3.

265. See Resource Renewal Institute, *What are Green Plans* (visited Jan. 12, 1999) <<http://www.rri.org/primer/what.html>>. This article outlines the characteristics of a green plan: (1) A dynamic, long-term planning process with strong government leadership; (2) sensitivity to public concerns; (3) clear goals and timetables, supported by modern information systems; (4) partnerships between government and industry; and (5) adequate investment. See *id.*

266. See *id.*

267. In particular, the President's Council on Sustainable Development's Environmental Task Force Workplan demonstrates a vision of a green plan in the United States that would incorporate an environmental management system that more comprehensively pursues environmental, economic and social equity goals than does our current system. See President's Council on Sustainable Development, *Environmental Management Task Force* (visited Sept. 6, 1999) <<http://www.whitehouse.gov/PCSD/tforce/emtf/index.html#wplan>>; see generally PHILLIP A. GREENBERG, *TOWARD A U.S. GREEN PLAN: THINKING ABOUT A U.S. STRATEGY FOR SUSTAINABLE DEVELOPMENT* (1993) (describing the blueprint of a green plan in the United States).

268. JOHNSON, *supra* note 4, at 3.

269. See *id.*

270. *Id.* at 123.

271. Huey Johnson, *Green Plans: The Working Definition of Sustainability Panel Remarks at the 1998 Public Interest Environmental Law Conference* (Mar. 7, 1998).

ing to cover the costs of community efforts and provide competent and objective technical assistance.<sup>272</sup> Lawyers can help to promote green plans by assisting in the development of laws that provide for their implementation on national, regional and local levels.<sup>273</sup>

"A major component of the government decision-making in any green plan is a process that involves stakeholder involvement."<sup>274</sup> This new approach involves a consensus model "in which the constituencies that make up a community work together to articulate a common vision of the future and to articulate strategies for its achievement."<sup>275</sup> In this framework, representatives from all sides of an issue are involved and all authority and responsibility rests with the group itself.<sup>276</sup> It means early, ongoing and meaningful public participation, whereby mechanisms are established to ensure that all community members have full participation, including training and support for community groups, technical assistance grants and community advisory groups. Consequently, the decisions made by the consensus group must be supported by government and implemented into local law. This approach achieves the best possible result because the decision-makers are better able to understand the complexity of the issues. In addition, it allows for all opposing viewpoints to be heard, assures that stakeholders will not feel compromised and generates trust within the community. Lawyers can have a significant role in stakeholder decision-making approaches. They can help to establish the decision-making framework, assure that all interested

and affected parties are represented, monitor the consensus process and guarantee that end results effectively become passed into local law.

In its involvement in the EPA Stakeholder Involvement Action Plan, EPA maintains it has learned a great deal about the value and benefit of stakeholder involvement in environmental decision-making processes and the Agency has taken steps to increase opportunities for, and the quality of, stakeholder involvement in its regulatory and non-regulatory programs.<sup>277</sup> The Common Sense Initiative provides a substantive example of the Agency's use of stakeholder involvement. To ensure that all relevant interests are brought to bear on the changes that evolve under CSI, the program invited the participation of multiple stakeholders.<sup>278</sup> In addition, EPA's Regulatory Negotiation and Consensus-Based Rulemaking program aims to "increase the use of regulatory negotiation and other consensus-based decision processes" through the use of "increased community and stakeholder involvement, partnership programs, and consensus-based project development."<sup>279</sup> Industry, government regulators, labor unions, environmental organizations and environmental justice groups have been brought together to explore and promote innovative reforms in order to improve traditional regulatory approaches within the specific sectors.<sup>280</sup> Project XL also incorporates a stakeholder element. For this purpose, EPA has defined "stakeholder" to include "communities near the project, local or state governments, businesses, environmental or other public

272. In Project XL, EPA offered to make "its own technical expertise" available to the public and promised to provide up to \$25,000 per project "in order to assure that necessary technical assistance is available to support meaningful stakeholder involvement." Regulatory Reinvention (XL) Pilot Projects, 62 Fed. Reg. 19,872, 19,881 (1997). However, "EPA attached so many strings to the use of the money that this token effort is likely to prove unsatisfactory to most potential public interest participants." Steinzor, *supra* note 216, at 145.

273. Many communities throughout the United States have developed green plan strategies. See Resource Renewal Institute, *Communities that Are Developing Green Plans* (visited Jan. 23, 1999) <<http://www.rri.org/urbancenters/developing.html>>.

274. JOHNSON, *supra* note 4, at 58-62.

275. Collin & Collin, *supra* note 1, at 451.

276. See generally JOHNSON, *supra* note 4, at 59 (describing stakeholder group decision making in the Netherlands).

277. See United States Environmental Protection Agency, *EPA Stakeholder Involvement Action Plan* 12/1/98 (last modified Jan. 13, 1999) <<http://www.epa.gov/stakeholders/siap1298.htm>>.

278. See United States Environmental Protection Agency, *CSI Homepage* (visited Jan. 19, 1999) <<http://www.epa.gov/commonsense/CSIApproach.html>>.

279. See United States Environmental Protection Agency, *Regulatory Negotiation and Consensus-based Rulemaking* (last modified Mar. 28, 1998) <<http://www.epa.gov/reinvent/notebook/rncr.htm>>.

280. See United States Environmental Protection Agency, *CSI Homepage* (visited Jan. 19, 1999) <<http://www.epa.gov/commonsense/CSIApproach.html>>.

interest groups, or other similar entities."<sup>281</sup> EPA later added, "this definition includes both those stakeholders in the proximity of the project and those stakeholders interested in the broader implementation of the concepts being tested in the project, such as state, regional or national environmental groups."<sup>282</sup> Every decision within each subcommittee must be consensus-based "which means giving all voices an equal chance to speak; treating all options, suggestions, and opinions as worthy of consideration; and promoting flexibility."<sup>283</sup> Both CSI and Project XL require industry applicants to negotiate proposals with a full range of interested constituents before EPA will sign off on a project.<sup>284</sup> Due to its strong public participation component, CSI should generate meaningful community involvement in the decision-making process.

The Community-Based Environmental Protection scheme tends to generate an even greater and more diverse number of stakeholders because the program "affects all individuals, groups, and industries concerned with the health and sustainability of a certain geographic area."<sup>285</sup> Such stakeholders include EPA Headquarters officials, EPA Regional officials, state officials, city planners, environmental groups, non-governmental organizations, tribal leaders, regulated communities, community groups, academics and concerned citizens."<sup>286</sup> This program appears to embody the truest form of stakeholder decision-making, given that all parties retain an equal voice throughout the process and the final decisions are followed accordingly.

Based on its experience using stakeholder involvement processes, EPA maintains that there are some key issues that need improve-

ment before it will implement stakeholder involvement processes in the future.<sup>287</sup> Some of the problems that have existed in the past include the following: (1) confusion as to how stakeholder involvement contributes to actual Agency decisions, which has led to stakeholder "frustration as participant expectations do not coincide with Agency actions;" (2) misconceptions as to the type of stakeholder involvement most appropriate for the decision being made and the type of results needed; (3) the reality that "some outside groups and interests find that it is difficult to commit the time and resources needed for effective participation in all of the activities to which they are invited;" and (4) EPA staff, at times, is unable to provide the planning and managing which is needed for ongoing stakeholder involvement activities.<sup>288</sup>

The Project XL pilot project at the Intel site in Arizona demonstrates many of the challenges that can result from a stakeholder process.<sup>289</sup> The stakeholder team identified the diverse frames of reference among stakeholders, the inefficiency of the process and the institutional inertia that exists with reinvention techniques as the "pesky but surmountable challenges" that the stakeholder process faced.<sup>290</sup> In particular, the conflicting frames of reference between stakeholder representatives created delays because common ground was difficult to identify on a few major issues.<sup>291</sup> The stakeholders also concluded that the stakeholder process was inefficient in direct proportion to its openness.<sup>292</sup> Finally, institutional inertia became a common obstacle as managers were "unfamiliar with the process and skeptical of experimentation," attorneys were concerned about potential litigation, and advocates "dubious about extending trust"

281. Regulatory Reinvention (XL) Pilot Projects, 60 Fed. Reg. 27,282, 27,287 (1995).

282. Regulatory Reinvention (XL) Pilot Projects, 62 Fed. Reg. 19,872, 19,877 (1997).

283. United States Environmental Protection Agency, CSI *Homepage* (visited Jan. 19, 1999) <<http://www.epa.gov/common-sense/CSIApproach.html>>.

284. See Steinzor, *supra* note 216, at 112.

285. United States Environmental Protection Agency, *About CBEP* (last modified Sept. 30, 1998) <<http://yosemite.epa.gov/osec/osechome.nsf/All/AboutCBEP?OpenDocument>>.

286. See *id.*

287. See United States Environmental Protection Agency, *Stakeholder Involvement Action Plan* (last modified Jan. 13, 1999) <<http://www.epa.gov/stakeholders/siap1298.htm>>.

288. *Id.*

289. See The Alternative Path, *Challenges in the Intel Stakeholder Process* (last modified Feb. 12, 1998) <<http://www.alt-path.com/challenges.htm>>.

290. *Id.*

291. See *id.*

292. See *id.*

were adverse to experimentation.<sup>293</sup> These problems are inherent in any stakeholder involvement process and pose serious obstacles for the use of stakeholders in government action.

The Stakeholder Involvement Workgroup has attempted to tackle these issues and has adopted an Action Plan to further research techniques and approaches to improving the stakeholder involvement process.<sup>294</sup> The Action Plan is based on the recommendations of participants involved with the CSI process. Some of these recommendations include: "using common vocabulary and the typology of stakeholder involvement techniques to build common understanding among participants," "using analytical tools to enhance effectiveness," and establishing "coordinating mechanisms to build internal and external capacity."<sup>295</sup>

Other potential problems with stakeholder involvement is determining where the involvement is to occur. For example, involvement could exist on a per-plant level, on a per-corporation level, a per-industry level or on a national (i.e. green plan) level. The decision to include stakeholders at any or all levels has varying ramifications on the organizations affected. Because industry, in general, does not like to give out information, the more times that a specific company has to go through the stakeholder process, the greater resistance industry most likely will impose.<sup>296</sup>

Nonetheless, stakeholder involvement in environmental decision-making has demon-

strated that it can achieve greater overall benefits than can other, more traditional approaches.<sup>297</sup> In addition, the process empowers citizens, educates them about important societal issues and promotes a sense of identification among citizens with their communities.<sup>298</sup> When people become rooted in their community and feel as if they have a meaningful interest in its future, they will be more compelled to act as stewards of their natural environment.

Lawyers can help foster this transformation to bring about a greater educated public and a more involved and effective governmental structure by generating empowerment within the communities in which they work and live. Within this new framework, government along with local communities should establish indicators to monitor particular environmental aspects relating to the health of the local ecosystem. Analysis of long-term trends toward sustainability are not prevalent in government activity.<sup>299</sup> These indicators include such factors as air quality, watershed quality, and species diversity.<sup>300</sup> All indicators must be accurate, reliable, and relevant. Government then must effectively monitor the indicators to evaluate where improvement is needed. Finally, government, through a ranking system, must act upon the areas that the indicators demonstrate warrant government assistance.<sup>301</sup> Furthermore, the community should be allowed independent review of business activi-

293. *Id.*

294. See United States Environmental Protection Agency, *EPA Stakeholder Involvement Action Plan* (last modified Jan. 13, 1999) <<http://www.epa.gov/stakeholders/siap1298.htm>>.

295. *Id.*

296. For example, one could look to the audit privilege debate or the problems with ISO 14000 pilot projects whereby the industry involved has demonstrated reluctance to sharing environmental data.

297. See discussion of green plans *supra* Part IV.B.2.

298. See Collin & Collin, *supra* note 1, at 454.

299. The absence of analysis is both a symptom and a cause of the limited role of environmental objectives in the present environmental regulatory system. See Michael P. Vandenberg, An Alternative to Ready, Fire, Aim: A New Framework to Link Environmental Targets in Environmental Law, 85 KY. L.J. 803, 814 (1996). With the exception of the Council on Environmental Quality, which acknowledges its own limited understanding of the status and trends in the condition of the

environment, "no agency or department in the federal government is responsible for what is arguably one of the federal government's most important functions: assessing the current state and long-term trends of the environment." *Id.* at 813 n.34. See also Council on Environmental Quality, *Environmental Quality: The Twenty-Second Annual Report of the Council on Environmental Quality* 187 (1992).

300. See, e.g., ALLEN HAMMOND ET AL., ENVIRONMENTAL INDICATORS: A SYSTEMATIC APPROACH TO MEASURING AND REPORTING ON ENVIRONMENTAL POLICY PERFORMANCE IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT (1995). The World Resources Institute has identified many of the essential environmental indicators that should be measured and monitored. See World Resources Institute, *Environmental Indicators* (visited Mar. 16, 1999) <<http://www.wri.org/wri/sdis/indictrs/>>, <<http://www.wri.org/wri/sdis/indictrs/email-01.html>>; see also United Nations Development Programme [sic], *Development Watch: Monitoring Progress on Sustainable Development* (visited Aug. 28, 1999) <<http://www.undp.org/devwatch/indicatr.htm>>.

301. see generally JOHNSON, *supra* note 4, at 133, 176.

ties in order to better manage environmental hazards.<sup>302</sup> Inherent in this analysis is a requirement that industrial sites perform environmental audits at least annually.<sup>303</sup> EPA has concluded that public access to information may be the necessary factor that leads to improved environmental results in individual facility activities with less governmental involvement.<sup>304</sup> Thus, citizens should have access to commercial facilities and be involved in gathering and monitoring their own health and environmental quality.<sup>305</sup> Workplace and environmental monitoring, performed at least quarterly by community members, would test the worksite, employee exposure indicators and environmental emissions.<sup>306</sup> Properly trained community residents can provide information that is as rigorous as data provided by paid professionals. Data quality is strongest when the people collecting it are the first to use it. Professional monitors often do not collect enough representative data because they do not use it, and because of the time and cost of collecting many samples in an area that may be unfamiliar to them. Volunteer resident monitors generally have a much denser spatial and temporal mix of sampling sites than is possible for public agencies struggling to bring industries into minimum compliance with environmental laws.<sup>307</sup> This role for communities provides the background of routine environmental monitoring necessary for public agencies and industry to uncover environmental contamination, mismanagement of environmental resources and threats to the natural system.<sup>308</sup> EPA's Permits Improvement Team ("PIT") program seeks to involve the public not only in the

setting of performance standards, but also in "the measurement and judgment of performance."<sup>309</sup> Hopefully, the PIT program and other government regulatory schemes can increase the public involvement with environmental monitoring efforts.

### 3. Establishing Subsidies, Taxes and Other Economic Incentives for Sustainable Commercial Behavior

Many of the Clinton Administration's reinvention projects incorporate incentives for better environmental performance. EPA's Compliance Incentives for Small Business is a program that encourages small businesses to expeditiously remedy violations discovered through compliance assistance and environmental audits by setting forth a settlement penalty policy that financially rewards such behavior (via penalty modifications where the amounts waived are used to bring the entity into compliance) and providing guidance for states and local governments to offer the same incentives.<sup>310</sup> Likewise, EPA's Flexible State Enforcement Responses to Small Community Violations gives states enforcement flexibility to provide compliance incentives when addressing a small community's environmental violations.<sup>311</sup> This will afford states the ability to develop small community environmental compliance assistance programs tailored to local conditions and specific state needs.<sup>312</sup> EPA also created the Flexible Compliance Agreements for Specific Industries and Incentives for Auditing, Disclosure, and Correction programs which aim to increase compliance "by allowing companies to dis-

302. SANFORD LEWIS, *THE GOOD NEIGHBOR HANDBOOK* 8-2 to 8-4 (1992); see also Collin & Collin, *supra*, note 24, at 82-84.

303. LEWIS, *supra* note 302, at 8-2; see also ELIZABETH GLASS GELTMAN, *A COMPLETE GUIDE TO ENVIRONMENTAL AUDITS* (1997) (providing a comprehensive discussion of environmental audits).

304. See United States Environmental Protection Agency, *Final Draft of Concept Paper on Environmental Permitting and Task Force Recommendations* (visited Jan. 19, 1999) <<http://www.epa.gov/epaoswer/hazwaste/permit/pit/pitdoc.txt>>.

305. See LEWIS, *supra* note 302, at 8-2 to 8-4.

306. See *id.*

307. See Collin, *supra* note 24, at 83.

308. See *id.* at 84.

309. United States Environmental Protection Agency, *EPA Reinvention* (visited Jan. 19, 1999) <<http://www.epa.gov/epaoswer/hazwaste/permit/pit/pitdoc.txt>>.

310. See United States Environmental Protection Agency, *Policy on Compliance Incentives for Small Businesses* (last modified Feb. 27, 1998) <<http://es.epa.gov/oeca/smbusi.html>>.

311. See United States Environmental Protection Agency, *Policy on Flexible State Enforcement Responses to Small Community Violators* (last modified Sept. 16, 1996) <<http://es.epa.gov/oeca/ore/aed/comp/acomp/a24.html>>.

312. See *id.*

close violations and correct them in a timely manner.<sup>313</sup> While these programs deserve merit for encouraging compliance among the regulated community, they operate within the present regulatory structure and do not create incentives to generate environmental performance that goes beyond compliance.<sup>314</sup>

Through the use of subsidies, taxes and other economic incentives, government must influence businesses to move beyond compliance toward the development of sustainable, restorative organizations according to The Natural Step principles.<sup>315</sup> Government must stop subsidizing activities that exploit the environment (such as cars, waste disposal, and nuclear fission) and start subsidizing activities such as "clean technologies that will lead to more jobs and innovation."<sup>316</sup> Clean technologies are those that operate according to The Natural Step principles.

The current tax system generally fails to tax environmentally damaging practices.<sup>317</sup> Government should revise the tax system to stop encouraging undesirable behaviors, such as resource depletion and pollution, and stop taxing desirable behaviors, such as income and work.<sup>318</sup> If taxes are used in this way, they can

enforce the payment of full costs.<sup>319</sup> The result will create a pathway to innovation by providing incentives for producers to lower their costs and, in effect, reduce the negative effects they cause to the environment.<sup>320</sup> Furthermore, the nation's energy, agricultural and transportation policies should be changed to become more responsive to environmental concerns.<sup>320</sup> Lawyers can play an integral role to bring about such reforms.

Government must create the necessary incentives for businesses to design their processes and products in more sustainable ways.<sup>322</sup> EPA's Design for the Environment ("DfE") program<sup>323</sup> helps businesses incorporate environmental considerations into the design and redesign of products, processes, and technical and management systems through voluntary partnerships with industry, universities, research institutions, public interest groups, and other government agencies.<sup>324</sup> Another EPA program, the Environmental Accounting Project ("EA Project"), encourages and motivates business to better understand the full spectrum of their environmental costs so that business will integrate these costs into decision-making.<sup>325</sup> Similarly, EPA's Environmental

313. See United States Environmental Protection Agency, *Flexible Compliance Agreements for Specific Industries* (last modified Mar. 28, 1998) <<http://www.epa.gov/reinvent/notebook/fcasi.htm>>; United States Environmental Protection Agency, *EPA Reinvention* (last modified Dec. 7, 1998) <<http://es.epa.gov/oeca/apolguid.html>>.

314. The Environmental Leadership Program also was designed to recognize and provide incentives to facilities willing to develop and demonstrate accountability for compliance with existing laws. See Environmental Leadership Program: Request for Pilot Project Proposals, 59 Fed. Reg. 32,062, 32,062 (June, 21 1994). The program was designed to improve corporate accountability for compliance in exchange for promises by the government to forego short-term enforcement if violations nevertheless occur. Participants in the program "accept the substantive constraints of the existing regulatory scheme, focusing their efforts on experimentation with managerial and organizational approaches." Steinzor, *supra* note 216, at 110-11. Unfortunately, at the time the research for this Article was conducted, implementation of the program was still on hold. United States Environmental Protection Agency, *Environmental Leadership Program (ELP) Home Page* (last modified Mar. 18, 1998) <<http://es.epa.gov/elp/>>.

315. Other methods include government lending and insurance for businesses that extensively adopt The Natural Step principles.

316. Hawken, *supra* note 4, at 53.

317. The only current federal environmental tax in place is

the tax on ozone-depleting chemicals. I.R.C. § 4682 (2000).

318. See, e.g., Hawken, *supra* note 4, at 50, 53; Alan Thein Durning & Yoram Bauman, Tax Shift, Northwest Environment Watch Report No. 7 (1998); Robert V. Percival, Regulatory Evolution and the Future of Environmental Policy, 1997 U. CHI. LEGAL F. 159, 196 (1997); JOHNSON, *supra* note 4, at 126-29. Europe currently is establishing taxes that address these issues.

319. See Hawken, *supra* note 4, at 53. Presently, permits to pollute are free, which gives the polluter no incentive to reduce his wastes below the permitted amount; see Steinzor, *supra* note 216, at 115 n.39.

320. HAWKEN, *supra* note 9, at 82-83; see also Orts, *supra* note 103, at 1269-71 (discussing the benefits and drawbacks of the pigouvian tax system).

321. See Percival, *supra* note 318.

322. See generally John E. Young & Aaron Sachs, The Next Efficiency Revolution: Creating a Sustainable Materials Economy, Worldwatch Paper No. 121 (1994).

323. See U.S. Environmental Protection Agency, *The Design for the Environment Program: Cleaner Technologies for a Safer Future* (1993).

324. See United States Environmental Protection Agency, *Design for the Environment (DFE) Program Home* (last modified Jan. 8, 1999) <<http://www.epa.gov/opptintr/dfe/index.html>>.

325. See United States Environmental Protection Agency, *EA Project* (last modified Apr. 14, 1998) <<http://www.epa.gov/opptintr/acctg/eaproject.htm>>.

Technology Initiative ("ETI") promotes improved public health and environmental protection by advancing the development and use of innovative environmental technologies.<sup>326</sup> Environmental technologies "prevent pollution, control and treat air and water pollution, remediate contaminated soil and groundwater, assess and monitor exposure levels and manage environmental information."<sup>327</sup> While DfE, EA Project, and ETI all are steps in the right direction (and support The Natural Step's first, second and third system conditions), due to their voluntary nature, the programs fail to go far enough to foster the type of design that would eliminate non-biodegradable waste and unrecyclable components from production processes.<sup>328</sup>

Systems of feedback and accountability can be established in commerce by having industry dovetail their material and waste flows to eliminate pollution.<sup>329</sup> EPA's-WasteWise program addresses this issue in its promotion of solid waste reduction.<sup>330</sup> While WasteWise assists organizations to design innovations that eliminate waste from their processes, the program also is only voluntary and fails to generate the industrial ecological framework that is required (where the out product of one factory is the raw input of another). As a way to take this process a step further and eliminate waste altogether, government could create an "intelligent product system."<sup>331</sup> An intelligent product system goes to

the heart of The Natural Step's second system condition- that substances must not be produced and dispersed at a faster rate than they can be broken down and integrated into the cycles of nature or deposited into the earth's crust.<sup>332</sup> This system initiates a cradle-to-cradle philosophy by holding manufacturers liable for all that they produce, which, in theory, will eliminate all non-biodegradable waste and non-recyclable components from their production processes.<sup>333</sup> This would prove an extremely useful doctrine to implement through law, which would establish that the least expensive means of manufacturing a product will be the most environmentally benign and constructive means.<sup>334</sup> Furthermore, public utilities should be established to regulate the supply and production of raw materials and resources in order to ensure the long-term viability of the resource.<sup>335</sup> The utility would be managed to maximize income from its fees (for use of the resource), and therefore it would have no economic interest in over-utilization or exploitation, since any form of degradation would reduce the value of the utility to its owners.<sup>336</sup> The utility would monitor usage of the raw materials or the resource so that income was maximized-where the utility would assure continued fees in the future. Many resource systems in the world, such as oil, timber, grasslands and salmon "are presently over-exploited and could benefit from becoming a utility that

326. See United States Environmental Protection Agency, *Environmental Technology Initiative* (visited Jan. 19, 1999) <<http://www.epa.gov/grtlakes/seahome/grants/src/eti.htm>>.

327. *Id.*

328. Europe has implemented far more laws that generate incentives for industry to adopt environmentally superior manufacturing and product design. See Raymond Communications, *Recycling Laws International* (visited Jan. 12, 1999) <<http://www.raymond.com/rllisum.htm>>. In particular, Germany's "Green Dot" law, a form of take-back legislation, has required industry to "take back" packaging materials on its products, generating the incentive to use less packaging and to manufacture packaging that is recyclable. However, critics have proclaimed that the "Green Dot" law, with its extreme "manufacturers' responsibility" system for package recycling, has not really succeeded in reducing use of packaging, even though it forces industry to pay about \$2.3 billion in fees to ensure "take back" in a separate system run by the Duales System Deutschland. See Raymond Communications, *German Packaging Ordinance Still Haunts Industry* (visited Jan. 12, 1999) <<http://www.raymond.com/grot98pr.htm>>.

European law has extended the take-back model from packaging to other consumer goods, most notably vehicles, batteries

and electronics. See Rod Hunter & Koen Muylle, *European Community: Product-Related Regulation and Liability*, 29 ENVTL. L. REP. 10515, 10518 (1999). Although Europe has encountered many problems with implementation of its take-back laws, resulting from the conflicting fees and additional requirements involved, these laws are rapidly becoming administered throughout the world. See Raymond Communications, *Recycling Laws International* (visited Jan. 12, 1999) <<http://www.raymond.com/rllisum.htm>>. See generally Hunter, *supra* (discussing Europe's take-back legislation and related environmental regulations).

329. See generally WACKERNAGEL & REES, *supra* note 3.

330. See United States Environmental Protection Agency, *WasteWise Homepage* (last modified Dec. 19, 1998) <<http://www.epa.gov/epaoswer/non-hw/reduce/wstewise/index.htm>>.

331. HAWKEN, *supra* note 9, at 67.

332. See Robèrt, *supra* note 3, at 86.

333. See HAWKEN, *supra* note 9, at 68-69.

334. See *id.* at 74.

335. See *id.* at 190.

336. See *id.* at 191.

is publicly regulated, privately managed, and market-based."<sup>337</sup> Thus, government should take these resource systems and develop public utility regulatory strategies for their long-term protection. An additional approach would be the development of public common law to regulate natural resources.<sup>338</sup> Such a law is implicit in the Constitution and it needs to be made explicit.

## V. Conclusion

We must create a constituency for change. We must generate an educated, activist network of people dedicated to attaining a society that exists according to The Natural Step principles.<sup>339</sup> Everyone within society will need to participate toward the same goal—a goal that our government leaders will need to clearly establish, clarify and promote. Government leaders will have to become more responsible to the public and develop a more long-term vision when making policy determinations. Accordingly, the role and function of government must be transformed and entirely redefined. In this new paradigm, lawyers must assume a more proactive role in bringing about this change. Lawyers need to be responsible for framing important issues and generating broad public dialogue and decision making to solve societal problems.<sup>340</sup> They must recognize their obligations as guardians of social cohesion by better educating the public, by demonstrating to people what they can do with information and knowledge, and by empowering communities to take action.<sup>341</sup> They must be a force that moves society toward sustainability.

Business leaders also will have to recognize the need for dramatic changes within their institutions. They must accept environment's limited capacity and avoid continuing to be the central obstacle to the new, restorative economy. Business leaders will need to actively initiate a complete overhaul of current business practices and systems and take the lead to demonstrate that they are capable of operating sustainable enterprises.

Given all that we must accomplish, The Natural Step model provides a compass with which to guide us to a sustainable future. Its principles have proven useful and effective. Nevertheless, because The Natural Step is only a theoretical model, a strategic implementation program must supplement the model to bring about more effective regulatory measures, powerful economic incentives within the commercial marketplace and a more localized and publicly involved governmental approach. Through the adoption of The Natural Step model and these other methods, we can develop toward a more sustainable, restorative existence.

337. *Id.* at 192. Enormous political obstacles must be overcome to generate such transformations in the way that resource systems are managed. Nevertheless, an example of a private regime having public oversight can be found in the commercial fishing industry where individual fishing quotas have been implemented for particular species.

338. *See* Winona La Duke, Keynote Address at the 1998 Public Interest Environmental Law Conference (Mar. 8, 1998).

339. *See* Robin Morris Collin, *Brownfields Redevelopment: Industry Meets Post-Industrial World* Panel, Remarks at the Public Interest Environmental Law Conference 13 (March 16, 1997) (transcript available with author); *see also*, e.g., Collin & Collin, *supra* note 24, at 44-47; JOHNSON, *supra* note 4, at 154-57.

340. *See* Collin & Collin, *supra* note 1, at 455.

341. *See id.*